

THE Soybean Digest

REG. U. S. PAT. OFF.

GEO. M. STRAYER, Editor KENT PELLET, Managing Editor

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IN THIS ISSUE

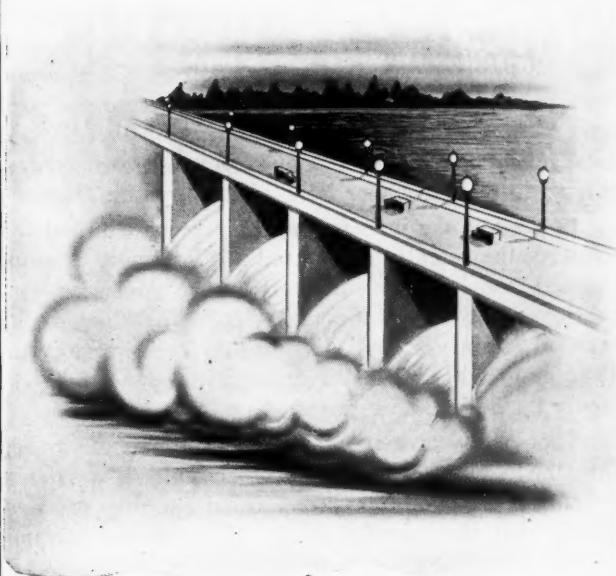
	Page
Editor's Desk	4
Growers	6
Letters to the Editor	10
Utilization of Oilseed Meals	12
L. B. CORMAN AND E. H. ZIEGENHAGEN	
Story of Flax	14
E. J. MITCHELL	
More Beans from Narrow Rows	17
Prospects Bright in 1947	18
J. W. CALLAND	
Soy Flour in Baked Products	20
New Oil Refining Process	22
Soy and Soil Fertility	24
FRANK S. GARWOOD	
Ohio Meeting March 14	29
Predicts Iowa Acreage Shift	30
Neff and Fry Founder Dead	30
Publications	32
Grits and Flakes	36
Soy Leading Food Oil	39
Washington Digest	40
PORTER M. HEDGE	
Market Street	42
Seed Directory	42
Iowa Yield Contest	42
Markets and Orders	44

THE AMERICAN SOYBEAN ASSOCIATION

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EDITOR'S DESK →

Low Price Won't Get Acreage

Soybean acreage goals for 1947 have been established at 11,244,000 acres by USDA officials. They call for an increase of approximately 21 percent over the 1946 acreage figures. Percentage of increase varies between states, running as high as 50 percent for one state with another showing a decrease of 9 percent. The 1947 goal is 275 percent of the 1937-41 average acreage for the U. S. State acreage goals were carried in the November issue of the *Soybean Digest*.

In view of the increased acreage requested, and recognizing the recently announced 1947 support price on flaxseed, the board of directors of the American Soybean Association went on record at its meeting in Chicago on January 20 as believing that an increase in the 1947 support price on soybeans will be necessary to secure the desired acreage.

There is a very marked desire on the part of soy belt farmers to return a portion of their cultivated land to grass and legumes this year. Good farming practices dictate that they should do so. We can not continue to take from our soils as we have by the huge crops of the war years, without undermining our soil resources.

Flax will replace some acreage that would have gone into soybeans. Corn will still be strong. Increased yields of small grains, together with new and better varieties, stimulate that acreage. Soybeans must compete with them all.

It was the consensus of opinion of the board members present at the meeting representing eight states, that at the 1946 support price of \$2.04 per bushel the acreage for the coming year will probably be about the same as for 1946. If the 21 percent increase is desired, an increase to about \$2.75 per bushel will be necessary to secure it.

Soybeans will be grown in quantity just as long as it is profitable for the farmer to produce them. Those profits are figured as comparative with other crops which might be grown on the same fields. With fats and oils supplies destined to be short over a period of the next several years, it is probable that soybeans will sell, as they have during the past season, at above support prices. The farmer, before he increases acreage materially, wants assurance that the crop will be profitable. An increased support price will give that assurance. The recommendations of the board have gone to the Secretary of Agriculture for consideration.

Seed Will Be Available

Since December there has been much speculation in the soybean belt about the availability of seed for 1947 plantings. Unquestionably the market price on beans after October 17 stimulated sales, and moved into the crushing market large quantities of soybeans which would otherwise have been held on farms.

Various agencies in the production areas have been conducting surveys to determine the seed supply situation. There have been as many answers as there have been surveys. It does appear, however, that there are

sufficient supplies of good quality soybeans, suitable for seed purposes, retained in most communities to plant the contemplated acreages. Some localities show surpluses—others have indicated shortages. But the overall picture would seem to be favorable. If any shortages occur, they in all probability will be in the early-maturing varieties.

Certainly there is no justification for the prices which have been quoted by some sellers—prices way out of line with seed values. It is our suggestion that you refuse to pay exorbitant prices—good seed will be available in other communities at prices in line with values.

In the March issue of the *Soybean Digest* we expect to carry the returns from a seed supply survey. In page 42 of this issue you will find a directory of seed sources. Do not be stampeded into purchases—soybean seed will be available for 1947 plantings.

Soybean Bluebook

Next month the first issue of the *Soybean Bluebook* will be distributed. Designed to include as much statistical material pertaining to the soybean industry as possible, together with lists of soybean processors, oil refiners, soybean foods manufacturers, industrial products manufacturers and other listing pertaining to the soybean industry, the *Bluebook* has been designed as a handbook or directory of the industry. It will be invaluable in answering the large volume of questions reaching the offices of the AMERICAN SOYBEAN ASSOCIATION pertaining to different phases of the industry.

Distribution will be made to all members of the American Soybean Association who are in good standing. Additional copies are being printed, and will be available upon request at the cost price of \$1 each. Orders for copies will be filled in the order in which received, as long as the supply lasts.

Dates Are Now Set

The 1947 convention of the American Soybean Association is now scheduled for Columbus, Ohio on September 4, 5 and 6. Dates have been scheduled with officials of the Ohio State University, with the Deshlar-Wallick Hotel, and other interested bodies. A committee has been authorized by the board of directors and appointed by the president, to be responsible for the planning of the program, and for local arrangements.

Mark the dates on your calendar now—September 4, 5 and 6, 1947. Make plans to attend what is anticipated will be the biggest convention in ASA history.

Just in Passing . . .

Another high yield is reported from a 1946 yield contest, this time in Iowa. The Iowa soybean champion for 1946 averaged over 52 bushels. Fifty bushel yields are no longer unique and yields generally continue to rise. Government crop reports, as well as yield contests show this. Better varieties, particularly Lincoln, have played their part in the bigger yields. Most soybean yield contestants last year grew Lincoln. But we aren't stopping with Lincoln. Other high yielding varieties are on their way . . . When most soybeans are planted in narrow rows we will have still larger yields . . . Feeders learned much about supplementing hog and poultry feeds during

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the war. We used to believe that substantial amounts of animal by-products were necessary for feeding hogs and poultry. Now we know that soybean oil meal if properly fortified, can largely replace animal meals . . . You will find an article on the subject of swine rations, by Corman and Ziegenhagen in this issue. It is the first of a series on soybean oil meal in livestock feeding.

— s b d —

NEW ILLINOIS DIRECTOR

Meet the new American Soybean Association director from Illinois, Frank S. Garwood, of Stonington.

Garwood is one of Illinois' soybean pioneers, as he has been producing them since the early 20's. He and his two sons, Harold and Donald, operate their farm under the firm name of Frank S. Garwood & Sons. They produce and sell Funk's "G" hybrid seed corn and certified soybeans.

Frank and his brother were the first to introduce the combine for harvesting soybeans, in the fall of 1924. This was the first time a combine had been used east of the Mississippi River. Much early work in building and adapting a combine to soybean harvesting was carried on on the Garwood farm. For an account of these ventures see the September 1944 issue of the *Soybean Digest*.

Garwood and his sons are all graduates of the University of Illinois.

You will find an article by Mr. Garwood on page 24 of this issue.

OUR DIRECTOR FROM MINNESOTA

Allow us to present the new American Soybean Association director from Minnesota, John W. Evans of East Home Farm at Montevideo.

Mr. Evans was growing soybeans as far back as 1918, began growing them on a considerable scale in the late 30's, after the drought period "broke up." He farms 480 acres, including the home farm at the edge of Montevideo. In addition to 100 acres of soybeans—largely Ottawa, Mandarin, Pridesoy and Habaro—he raises 100 acres of crossing plots for Minhybrid seed corn, 25 acres of flax, as well as other crops, and operates a dairy.

"I have had very good results from soybeans the past 4 or 5 years," says Mr. Evans. "I claim I have made more money with soybeans and kept my fields cleaner than I have with flax during the same period."

Our new director has been a member of the board of directors of the Minnesota Crop Improvement Association since 1924. He served as president from 1926 to 1934, at the present time is chairman of the Association's legislative committee. He is secretary of the Minhybrid Growers' Association, a statewide setup.

A special honor was selection in the first class of Premier Seed Growers in Minnesota, in 1928. "My age is 56, I am married with three children, one of them only at home in high school. I am a Methodist, a Mason and a Republican," Mr. Evans says to sum up his activities.

Our director's success with soybeans must have been duplicated by many other Minnesotans, for the crop has increased in importance in Minnesota the last few years until that state is pushing Missouri hard for fifth place in soybean production.

FEBRUARY, 1947

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CONTROL SEED ROT AND DAMPING OFF

with

Spergon

Reg. U.S. Pat. Off.

SEED PROTECTANT

Field tests made by various experiment stations have proved conclusively the value of treating soybean seed with Spergon.

In several tests—emergence of treated seed over untreated seed was improved by as much as 10 to 20 per cent.

HEAVIER STANDS ASSURED

Spergon gives seed immunity to soil-borne fungi, which tend to cause decay and damping off.

It accelerates emergence—insures heavier stands and bigger yields.

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Spergon treatment is inexpensive. It takes but 2 oz. of Spergon to protect a bushel of seed.

Furthermore—Spergon is safe to use. It is non-injurious to humans and animals, and it cannot harm seeds even when used to excess.

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GROWERS

Seed Is Short

An acute shortage of soybeans for spring seeding prevails throughout the soybean-growing areas of the East and Midwest as a direct result of the high price that has been paid by processors bidding for the soybean crop the past few months, according to a statement made by J. C. Hackleman, farm crops specialist of the agronomy department, University of Illinois.

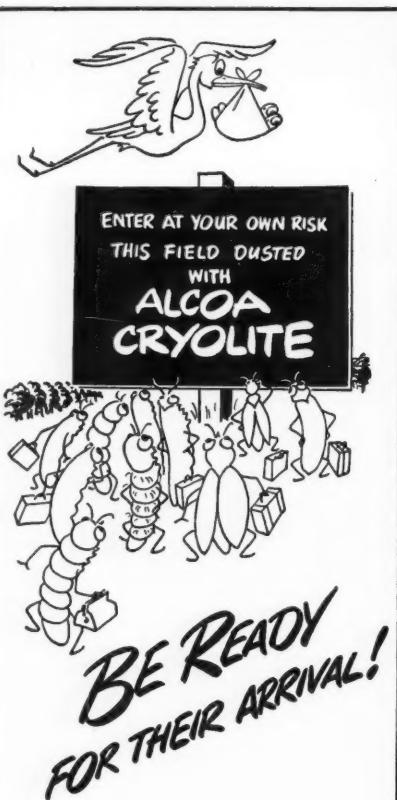
States in which there is an acute shortage of soybeans for seed include Pennsylvania, Ohio, Indiana, Illinois, Missouri, Iowa and Nebraska. Not only have farmers sold themselves short of seed to take advantage of the high price offered, but representatives from the Southern states, Arkansas, Tennessee and Mississippi, are already in the Northern territories buying beans in carlot quantities and moving them out.

Lincoln and Chief varieties are the principal varieties being taken out. What beans remain in elevators may have been separated with seed beans in separate bins, but even some of these beans have already been bought by processors who sold the oil and meal that is in them.

Burdette's Report

Dortchsoy 2 topped all other soybean varieties in yield per acre in the Burdette Plantation, Burdette, Ark., variety tests in 1946.

Cotton variety test on the Burdette Plantation.



Dust with ALCOA Cryolite! Entomologists recommend this insecticide for controlling Velvetbean Caterpillars, Mexican Bean Beetles and other chewing insects. Its efficiency has been time-tested and proved.

ALCOA Cryolite—the chemically controlled insecticide—gives you these advantages:

1. Particle size uniformly controlled.
2. Maximum, even coverage.
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5. Negligible abrasive effect on equipment.

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—Compatible with insoluble-type copper compounds, sulphur and other neutral fungicides, insecticides and diluents.

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ALCOA
CRYOLITE INSECTICIDE

Average yield for Dortchsoy 2 was 39 bushels, topping Ogden by 3 bushels, the plantation report reveals.

Average 3-year yield for Ogden was 44 bushels per acre. Yield of Dortchsoy 2 was not reported in 1945.

Results of the plantation tests for 1946 and the 3-year average follow:

Variety	1946 bu. per acre	3-yr. av. bu. per acre
Dortchsoy 2	39	—
Ogden	36	44
Burdette 12	34	—
Burdette 19	25	31
Ralsoy	24	29
Arksoy 2913	23	28
Burdette 13	22	34
Dortchsoy 7	22	—
Burdette 20	21	30

Burdette 13 and Burdette 19 are Arksoy selections made in 1942 that have outyielded the Arksoy and Ralsoy varieties. Burdette 13 matures about 10 days later than Ralsoy and Burdette 19 matures at the same time as Ralsoy and Arksoy.

Arkansas Hopeful

Farmers of Mississippi County, Ark., look forward to a 1947 soybean harvest equal to that of 1946 and continued good prices. This was the conclusion reached at the second annual dinner meeting of the North Mississippi County soy-

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Head and Shoulders Above the Crowd



Speeds Soybean Harvest

Every year the Case "A" combine climbs higher in the respect of the men who grow and who buy beans. Good seasons and bad, it has proved its ability to keep going more consistently, to harvest more beans while conditions are good, and to make the most of a crop when conditions are bad. The years also have proved that the "A" has Case ENDURANCE—long working life with low upkeep.

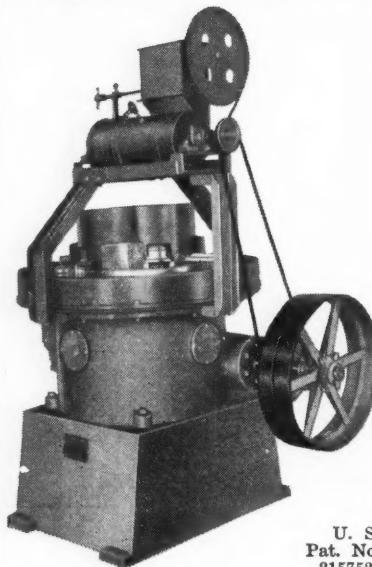
Among the reasons for the amazing capacity of this 6-foot combine are its cylinder, proportioned for windrowed crops as well as standing grain, and with positive control of speed and clearance . . . full-length rack with a separating motion perfected through a hundred years of development . . . and Air-Lift cleaning that keeps sieve openings clear of trash, lets seed fall free. Power-driven reel and non-clog steel-finger grates play their part in capturing every possible pod and in handling wet or weedy material. See your Case dealer now about getting an "A"—the combine that stands head and shoulders above the crowd.

Other Case Combines to handle larger acreages of beans and grain are the 9-foot "M" and 12-foot "K." Both have auger-type headers, power controlled. Both are built to work regularly at $3\frac{1}{2}$ to 4 miles an hour, getting extra capacity from the speed of modern tractors. All Case combines are efficient for harvesting seeds of grasses and legumes. Production of "A" combines has been in full swing for many months, but thousands of farmers want them. Write for catalog; mention also any other farm machines, implements or tractors you need. J. I. Case Co., Racine, Wis.



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bean planning committee held at Blytheville January 6.

Mississippi County produced 3 million bushels of soybeans in 1946, which places the county among the top producers in the nation.

The committee was formed last year. At its first meeting it hit the bullseye with three suggestions:

(1) A shift from Arksoy to Ralsoy varieties.

(2) That combine adjustment schools be set up.

(3) That farmers in the area be kept posted on the price outlook.

All suggestions had been carried out successfully. In addition, the committee sponsored extensive variety yield tests in the county in 1946.

With this record of accomplishment behind it, the committee made the following suggestions and plans for 1947:

(1) Agreed that combine improvements are necessary to adapt them better to the harvest of soybeans. Implement engineers will be called in during harvest to study needed adjustments and changes.

(2) Decided to investigate the possibilities of a countywide soybean yield contest.

(3) Advocated continuing soybean variety tests throughout the county in 1947.

George Hale, plant breeder for Burdette Plantations at Burdette, was elected chairman of the group.

Results of the 1946 yield tests, which were conducted by 19 farmers, showed a higher yield per acre and a better cash return with Ogden than with other varieties.

Ogdens averaged 6 bushels per acre more than the other varieties and returned \$15 more cash per acre. The average Ogden yield was 39.7, of the other varieties 33.7 bushels.

But Ralsony was the leading variety planted in Mississippi County in 1946. County Agent Keith J. Bilbrey pointed out: "We must still grow a good acreage of Ralsons. They are good yielders that will stay in the field a long time after maturity. The Ogden variety should be limited to what can be harvested within a reasonable time after maturity."

All-Time Record

Soybeans ranked next to corn in total crop value in Illinois in 1946,

and helped to make last year outstanding in Illinois agricultural history, according to A. J. Surratt of the Illinois crop reporting service.

The value of the Illinois soybean crop in 1946 was 198 million dollars, an all time record.

The high quality soybean crop of 75 million bushels was practically the same as the record 1945 crop. The yield of 23.5 bushels on the reduced acreage is only a bushel under the 1939 record and 3.5 bushels above that of last year and the 10-year average.

Yields varied considerably due to fungus diseases, grasshoppers and spotted storm damage. Lincoln beans on half of the state acreage outyielded other varieties by a wide margin.

Ninety percent of the crop was combined under ideal harvest conditions ahead of wet weather in late October. The large oats and hay crops ranked third and fourth and winter wheat fifth in value with the latter the only major crop with production below average.

In Rotation

Since 1942 some of the plots at the Agronomy Farm of the Iowa Agricultural Experiment Station have been varied in a 4-year rotation to include soybeans.

A rotation which was formerly corn - corn - oats - clover has been changed to soybeans-corn-oats-clover. These plots have been compared with the old 4-year rotation.

The yields showed that the crops which followed soybeans were helped by the beans. When corn followed soybeans (with no other soil treatment), the yield was nearly 9 bushels an acre over the plots where corn followed corn.

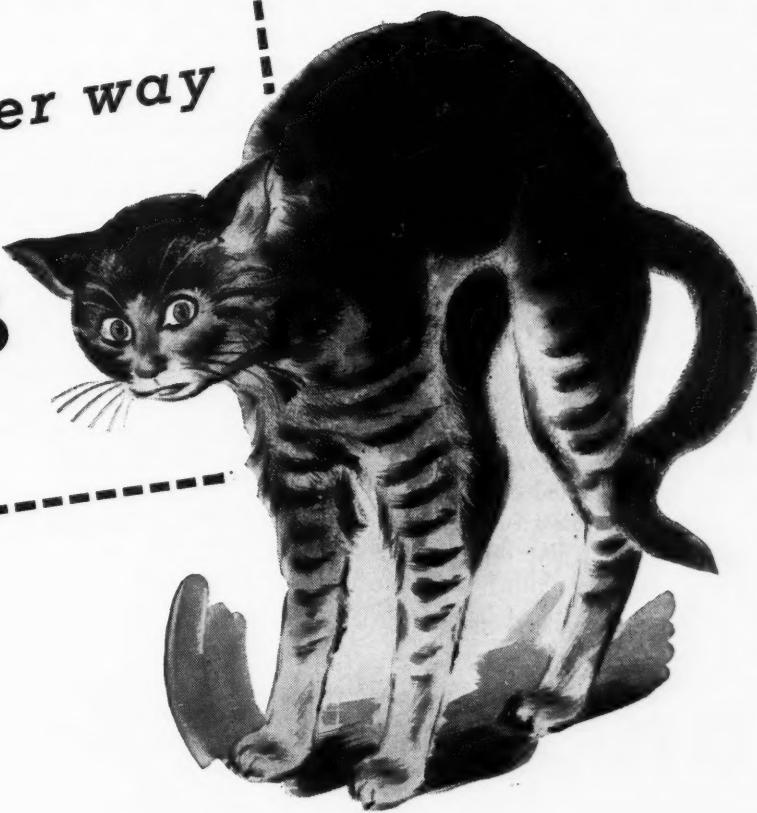
In the 4-year rotations the first year of corn (in the corn-corn-oats-clover rotation) yielded nearly 72 bushels an acre, while the second year of corn in the rotation dropped to 64.3 bushels an acre—nearly 12 bushels less for the second year corn.

With Tobacco

Soybeans, grown in rotation with tobacco on coarse sandy loam soils, have proved a satisfactory source of nitrogen for the tobacco, reports *Southern Tobacco Journal*.

Tests run by the N. C. Agricul-

For whichever way
the cat
JUMPS

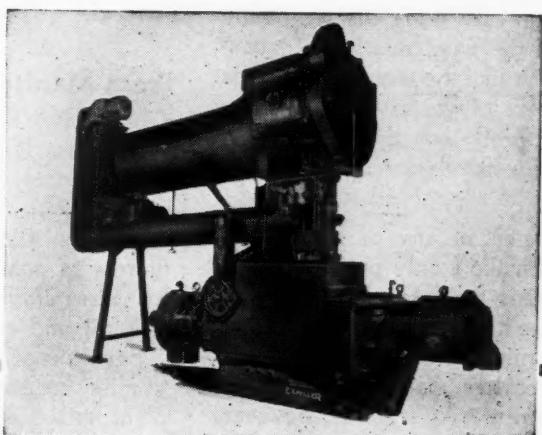


"No one knows which way the cat will jump"—that means no one knows what material you will find it profitable to press from year to year. Whatever happens, you are prepared when you operate with Anderson Twin-Motor Duplex Expellers, for they give lower costs on cottonseed, peanuts or soybeans.

Will you have the facilities and labor to handle the increased crops in the years ahead? Will you be able to press soybeans if they are offered? Don't let

inadequate equipment hold you back or limit you to one crop. Remember that two men can handle a battery of these Duplex Expellers and profitably press cottonseed, soybeans and peanuts. Send today for detailed information.

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tural Experiment Station, in which this was studied, have shown that the yield of tobacco following the soybeans averaged 1,404 pounds per acre for the 7-year period of the test. This tobacco had an average value of \$480.12 per acre, with an average price per 100 pounds of \$34.20. As the prices indicate, say tobacco research workers located at Oxford Tobacco Branch Station who conducted the work, the quality of the leaf was superior when grown following the soybeans.

In the rotation tested, oats followed the tobacco. After the oats were cut for hay, the soybeans were broadcast on the land. When the beans were mature, they were harvested for seed, and the remainder of the soybean plants were disked and plowed under in the fall. Rye followed the soybeans and was plowed under in the spring before the tobacco was set.

No '47 Collapse

"While prices of farm products are not likely to maintain the present average in 1947, unless we have a bad crop year, they are not likely to collapse as they did in 1920," asserts L. J. Norton, professor of agricultural economics, University of Illinois College of Agriculture.

Writing in the December issue of the *Illinois Farm Economics*, Norton adds that "demands for too many things are unsatisfied for such a collapse to be likely. Except for shifts to more rational rotations and increases in the livestock needed to use up the big 1946 corn crop, no large shifts in our 1947 farm plans seem to be warranted."

He observes that we are at or past the peak of postwar prices and cautions farmers to remember that prices can go down as well as up now that price ceilings have been released.

LETTERS TO THE EDITOR

Earlyana Again

To the Editor:

I cannot help but reply to K. E. Beeson's splendid defense of the Earlyana bean in the November issue of the *Soybean Digest*.

It was never my intention to imply that the Earlyana should yield with the Lincoln soybean. I stated definitely that the Earlyana did not mature any earlier on our place than did the Lincoln and I further stated that neither was the yield ratio favorable. By using the term ratio I meant the fixed relation of quantity, much like the term is used when one speaks of the ratio of silver to gold. Surely nobody implies that silver is worth as much as gold but the ratio is pretty well understood.

As stated in any of the reports which I make I only put down what I observe in the field. The Earlyana, according to information which had been furnished us, was supposed to be an earlier maturing bean than the Lincoln. As I stated, however, it appeared to mature earlier. The moisture tests of the Earlyana were about 1 percent higher than those of the Lincoln combined on the same day. As far as the yields are concerned I can only reiterate that

the Lincoln outyielded the Earlyana by about 10 bushels to the acre which is not a particularly favorable yield ratio, according to the data from several experiment stations.

I am indeed sorry that we were not more favorably impressed with the performance of the Earlyana. Possibly in another year it might act differently but we can judge them only "as they appear in the ring today."—I. I. Cohn, Valley Farms, Carrollton, Illinois.

From Manitoba

To the Editor:

We are a long way "down North" and soybeans are very much in the experimental stage here. We can grow rape (Argentine) and sunflowers to good advantage. A new hybrid sunflower yields over 30 percent oil and matures perfectly.

Soybeans are not yet early enough to miss our early frosts. We cannot plant until May 20. First frosts are usually September 10.

I am still interested in the (soybean) crop and believe it may some day come into more general use in western Canada.—A. B. Downing, Box 81, Brandon, Manitoba.

CASE HISTORY No. 12

One in a series of factual experiences of a group of American manufacturers with Multi-wall Paper Bags.

COST COMPARISON

(Per Ton)		100-lb.	100-lb.
		Drums	Paper bags
Container cost . . .	\$14.00		\$2.60
Labor cost	4.16		1.03
Total bag and			
labor cost	\$18.16		\$3.63
Saving per ton,			
paper bags over drums			\$14.53

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CEMENT	FERTILIZER
CHEMICALS	FOOD
FEDSTUFFS	MISCELLANEOUS

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ST. REGIS PACKAGING SYSTEMS are designed to meet a wide range of product requirements and plant layouts. Packers are available in a variety of sizes and types, with filling speeds as high as twenty-four 100-lb. bags per minute—with one operator. Nearly 400 products—rock products, fertilizers, chemicals, foods, and feeds—are now being packaged in sturdy, low-cost multiwall paper bags.

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Small manufacturers, as well as large ones, can benefit by the economies and efficiency of a St. Regis Packaging System.

An outstanding example of how successfully the system was applied by one small manufacturer is found in the case of the Stevens Soap Corporation, of Brooklyn, N. Y. This company manufactures soap powder which is used as a general purpose cleaning agent and as an ingredient of abrasive cleaners.

Faced with the high cost of drums being used for packaging of the powder, and confronted by a shortage of labor, the Company installed a labor-saving 100-LS St. Regis packer in 1944 and switched to multiwall paper valve bags. Here are some of the immediate results:

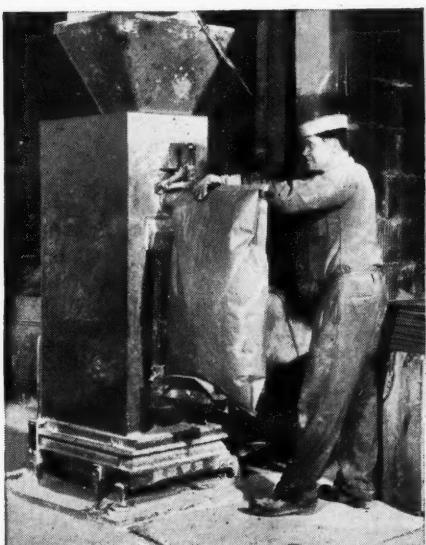
- Container costs dropped from \$14 to \$2.60 a ton — a saving of 81%.

• Packaging output, although limited because of material shortages, increased from 2,500 to 6,000 lbs. per hour.

- Packaging costs went down 80%.
- Labor requirements dropped from five to three men.
- Much valuable storage space was saved by compact Multi-walls.

• Dust was eliminated from the packaging operation. So satisfied is the Company with its St. Regis Packaging System that it has ordered and received shipment of another 100-LS packer in anticipation of increased output when shortages of ingredients are eliminated.

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Left: One man operates the St. Regis 100-LS packer.
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UTILIZATION OF OILSEED MEALS in Swine Rations

By L. B. CORMAN and
E. H. ZIEGENHAGEN



Soybean oil meal is the one oilseed meal that can replace tankage in the swine ration, with minerals and vitamins added.

ALTHOUGH the pig surpasses several other farm animals in efficiency of feed utilization, it is nevertheless a rather inefficient machine for converting feed to food. Yet the American palate, and particularly the 1946 model, is not concerned with efficiency. It demands tasty pork chops and savory ham. As has been so vividly demonstrated during periods of meat shortages, America demands the luxury of these foods. It cares little if a bushel of corn yields 95,000 calories as human food in contrast to only 15,000 calories when converted to pork products.

In normal times, however, the consumer as well as the producer is interested in efficient pork production. Efficient production means lower costs and greater profits for the producer. These in turn lead to a larger volume of production and lower prices to the consumer. Efficiency of livestock production is a matter with which we are all concerned.

To make possible the maximum and most efficient production of pork products requires a thorough understanding of the most successful ways of utilizing oilseed meals in combination with other feeds, principally corn. Corn is the mainstay of the American hog ration. Normally 40 percent of the domestic crop is fed

to hogs. This, plus small amounts of other cereals, their by-products and pasture crops, constitute the carbonaceous portion of swine rations. Our problem, as will be shown later, is to fit oilseed meals into this pattern of various feeds.

Many corn-hog farmers will ask, why worry about oilseed meals in hog rations? Their unconcern is based on the premise that tankage and skim milk are all that is needed to produce a market hog. The feed manufacturer who has substituted his way through the last 5 years knows that tankage and skim milk are woefully short in supply and are by no means adequate for the production of the needed amounts of hog balancers and concentrates.

The supply of animal and marine proteins must be supplemented with

• *In spite of the great advance during the war, half our livestock men still are not feeding balanced rations. This paper was presented at the recent nutrition conference at the University of Minnesota Farm School.*

large quantities of oilseed meals to adequately balance the corn fed to hogs.

COULD USE ALL PROTEINS

Relative amounts of protein feeds available during 1945-46 and the amount of corn each protein meal will balance to a 15 percent protein ration is illustrated in Table 1, page 28.

It is obvious that the supply of animal and marine proteins falls far short of balancing the corn fed to hogs. Without the oilseed meals, hog rations would be wholly inadequate in protein. It's an astonishing fact that *if all the corn fed to hogs were properly balanced with combinations of the protein supplements listed in Table 1 nearly all the available supply of protein feeds would be consumed for this one single purpose.* This further illustrates the fact that our total domestic production of protein feeds falls far short of supplying the required protein for livestock and poultry rations.

The feed manufacturer and experiment station still have the responsibility of convincing a large proportion of our farmers of the necessity and economy in feeding rations properly balanced with respect to protein. We

estimate that 50 percent of our livestock and poultrymen today are not feeding balanced rations. This is substantiated by our previous analysis showing that our total protein supply is barely adequate to balance hog rations. Our basic problem then is one of creating a demand for the needed amounts of protein feeds. This in turn should stimulate production of protein feeds sufficient to meet all needs.

To adequately review the use of oilseed meals is to cover their adaptation in both reproduction and growing-fattening rations for swine. This presentation allows sufficient opportunity to treat only the use of oilseed meals in growing-fattening rations. Reproduction is a separate subject in itself and many problems still remain to be solved.

TRINITY MIXTURE

Initial successful use of oilseed meals in swine rations began with the development of the trinity mixture at the University of Wisconsin in the early 1920's. Stages in the development of the trinity mixture can be traced about as follows:

Ration .	Av. daily gain	Total feed for gain	100-lb. gain
	lbs.	lbs.	lbs.
Corn	0.59	642	
Corn and tankage	0.90	426	
Corn, tankage, alfalfa..	1.05	386	
Corn, tankage, alfalfa, linseed oil meal	1.16	366	

Without question, the success of the trinity mixture is due to protein and mineral factors from tankage, vitamin factors from alfalfa and palatability and conditioning properties from linseed oil meal.

We have no definite information about the pig's requirements of lysine during early growth but estimate it at about 1 percent. This is the required dietary level for the rat and chick, both of which have growth rates and total protein requirements approximating the pig. The evidence is quite convincing that the value of tankage as a supplement to corn must depend very largely on its ability to supply lysine. The lysine content of currently produced packer-type 60 percent tankage is estimated at 3 to 4.3 percent. How tankage compares with the oilseed meals and corn in lysine content is illustrated in Table 2, page 28.

A review of the amino acid values

of oilseed meals indicates the possibility of replacing linseed oil meal in the trinity mixture with several other oilseed meals. This has been done with no sacrifice in performance of the trinity mixture. The amino acid study also suggests the possibility that soybean oil meal is the best oilseed meal for replacing tankage in swine rations. It is common knowledge that soybean oil meal properly supplemented with minerals is a fully adequate replacement for tankage. However, it is not the equal of good quality fish meal. This is illustrated by a typical experiment at the Minnesota Station in 1944. A summary follows:

	Av. daily gain	Total feed for gain	100-lb. gain
	lbs.	lbs.	lbs.
Corn plus fish meal.....	1.60	363	
Corn plus tankage	1.38	369	
Corn plus soybean oil meal	1.41	390	

Fish meal, a highly rated supplement to corn, also has the remarkable ability to improve the performance of soybean oil meal and other oilseed meals. It apparently excels tankage in this respect. Many investigations have been made in an effort to identify marine protein factors that improve soybean oil meal for growing pigs. Choline and methionine have been found without effect. The factor is not niacin, riboflavin or folic acid.

There is speculation as to whether the factor might be a protein utilization or a palatability factor. It is quite certain to be nonprotein in

Most of the present protein supply would be required to properly balance all of the corn fed to hogs.



nature. We find it relatively insoluble in the common solvents. Fish meal used in the proportion of 1:9 with soybean oil meal seems to supply sufficient of the supplementation factor.

Referring again to the amino acid table it is evident that no oilseed meal equals soybean oil meal as a major supplement to corn. At least one oilseed meal—namely, cottonseed oil meal produced by the hydraulic process—has limitations in hog rations not entirely because of nutritional inadequacy but by reason of its toxicity due to gossypol.

SOYBEAN OIL MEAL UNIQUE

To be sure, miscellaneous oilseed meals can be used at low levels which might not inhibit the over-all performance of the ration—and such use would be desirable from the standpoint of efficient use of our nation's protein supplies.

The most efficient use of oilseed meals in concentrates for hogs is patterned after the trinity mixture or some modification of it. The trinity mixture, which was essentially a dry lot concentrate, utilized high levels of alfalfa meal. Whereas tankage formerly constituted the main portion of the trinity mixture, we now know that *soybean oil meal is the one oilseed meal that can replace tankage*. This replacement can be made in practically any amount that is required provided the alfalfa is maintained at the 20 to 25 percent level and appropriate adjustment made in the mineral levels. This formulation can be improved by judicious use of fish meal at levels approaching the proportion of 1:9 with soybean oil meal.

Experience has shown that oilseed meals other than soybean oil meal cannot be substituted for tankage in the amounts indicated for soybean oil meal in dry lot concentrates.

The trinity mixture can be modified for pasture feeding by elimination or reduction of alfalfa meal. This permits the use of more protein meals and permits a higher protein guarantee than is possible for dry lot concentrates. Considerable liberty can be taken with such a concentrate in regard to proportion of tankage to oilseed meals and with the proportion of oilseed meals to each other. We do not think it necessary to use fish meal in pasture formulations. It

(Continued on page 28)



Flax is harvested with the same equipment used for wheat, oats and other small grain.

By E. J. MITCHELL

Secretary Flax Development Committee

- Sixth in a series of articles about oilseed crops which compete with soybeans. Previously, articles on cottonseed, peanuts, sunflowers, tung and Middle American oilseeds have appeared. This one is by the secretary of the Flax Development Committee.

NO ONE knows just where to begin the story of flax. The remains of the plant have been found in the Stone Age dwellings in Switzerland, and more than 4,000 years ago the Egyptians were using the fibre to weave beautiful linens. The mummies in our museums are wrapped with innumerable layers of fine linen which has been rubbed with ground flaxseed—thus providing a protective coating of linseed oil.

Flax was known and used by the ancient Phoenicians, Greeks, and Romans. In 230 A. D. Galen mentioned the drying properties of linseed oil. Other writers of the same period recommended it for painting because of the same drying qualities. In the 8th century Lucca mentions its use with resin as a protective coating for paintings. By the 13th and 14th centuries, the protective value of drying oils was generally recognized in England,

France and Germany, and linseed oil was firmly established as an essential commodity.

As would be suspected, so useful a plant as flax was promptly introduced to the New World by the earliest colonists. It was an important crop in Massachusetts in 1630, and only a few years later flax was mentioned in laws passed by the Virginia assembly. By 1770, flaxseed was an important export item at New York. By 1791, when exports totalled 292,400 bushels, the crushing industry had been established in New England.

Introduction of the cotton gin put an end to a promising linen industry in the young nation and the flax acreage slumped. But a quirk of history helped keep the linseed oil industry alive.

FLAX IN NEW ENGLAND

The Tudor Ice Co. of Boston was carrying on a thriving business of delivering ice to the British army in India. On the return trip it loaded its sailing vessels with Indian flaxseed, and a number of small linseed mills promptly sprung up along the Eastern seaboard.

By the middle of the 19th century, America's flax production, which had been centered largely in Vermont, Connecticut, New York and New Jersey, began to heed the advice of Horace Greeley. At the time of the Civil War, half of the national production came from Ohio and Kentucky, with the Miami (Ohio) valley representing the heart of the area. Dayton became the center of the linseed industry with small mills located in nearly every small village along the Miami River.

But flax continued to move west. In 1879, Illinois led in flaxseed production, only to be surpassed by North Dakota in 1881. It was in these wide fertile plains with their deep soil and cool summers that flax finally found its home. Today North Dakota and Minnesota vie for the lead and along with South Dakota, Montana, and Iowa, form the flax belt which produces 85 percent of the nation's flaxseed. Outside of this area only California, Kansas, and Texas have important acreages.

But things did not always go smoothly. For a while there was an abundance of new land to break and unusually favorable weather conditions brought high yields year after year. This was too good to last.

Farmers who had run out of new land began to find that the same fields that had brought them 15 to 20 bushels of flaxseed per acre, no longer produced a profitable crop. They tried it again and didn't grow enough to harvest. "Flax does something to my soil", they said. "Flax is hard on the land". Even the

most loyal flax growers were forced to turn to wheat and other grains. The entire American flax industry seemed to be doomed.

But in 1900, H. L. Bolley, botanist and plant breeder at North Dakota Agricultural College, Fargo, found the answer when he discovered flax wilt, a fungus disease which had infested the soil and was destroying the crops. It was wilt, and not decreased fertility, that was responsible for the diminished yields.

Then Bolley, one of the great crop men of all time, went to work, using all his ingenuity. By using revolutionary methods since copied by plant breeders all over the world, he produced Bison, a wilt resistant variety. Flaxseed again flowed from fields which hadn't produced a respectable flax crop in 20 years. The flax industry in America was safe.

Flax growing requires a distinct technique no more difficult, but somewhat different from cereal grains. Flax is a slender plant, frail in appearance and its few leaves make it ill-prepared to compete with weeds. As a result, successful flax growing is largely a matter of weed control.

There are many ways in which the weed problem has been attacked, though none of these methods are peculiar to flax alone. August plowing, proper crop rotations, shallow spring working, and clean seed all help to keep fields clean. In recent years chemical weed sprays have produced almost miraculous results in destroying wild mustard, wild buckwheat, and other broad-leaved weeds without damaging the growing flax crop.

Farmers accustomed to seeding wheat deep in the ground found that the tiny flax seed must be sowed shallow, usually one-half inch from the surface. Drilling is the recommended method. Flax requires a firm seedbed, and packing the soil before or after seeding has improved stands materially. For many years farmers believed that flax could be and should be seeded late in May or June, after everything else was in. Only in recent years have they realized that early planting pays. Many of the most successful growers are now sowing flax as soon as the land is ready in the spring—before anything else.

BEAUTIFUL SIGHT

A field of flax in full bloom is considered by many to be one of the most beautiful of rural scenes. The flowers are normally blue, although certain varieties may be white or pink. The period of maturity is only slightly longer than for other small grains. The ripe plant, which averages from 20 to 30 inches in height, requires no special harvesting equipment. The seeds are found in round bolls approximately three-eighths to one-fourth inch in diameter and may be threshed with



A flax field in full bloom.

either a standard combine or stationary separator.

The national average yield in 1946, a favorable year, was 9.6 bushels per acre. The state average in Iowa was 15 bushels per acre and 11 in Minnesota. Individual farmers in the Northwest frequently receive yields in excess of 20 bushels per acre and occasionally one of 30 is reported. In California and Arizona, where flax is grown on irrigated land, average yields are approximately 10 bushels above the national figure.

Flax has proved to be a hardy crop. It resists heat and frost, drouth and excessive moisture, as well as, or better than any of the other grains produced in its area. Disease-resistant varieties have gone far toward eliminating what was once the most serious problem confronting the grower.

The current scarcity of linseed oil, so badly needed in paint for the nation's expanded building and reconversion program, has made the American public more flax-conscious than ever before. Linseed oil has always been the dominant oil in the paint industry and at the present time there is no indication that its position is threatened. As Francis Schofield of the National Paint, Varnish and Lacquer Association expresses it, "If we were to develop a substitute for linseed oil, it would be satisfactory for most purposes to the degree that its properties approximate those of a good linseed oil."

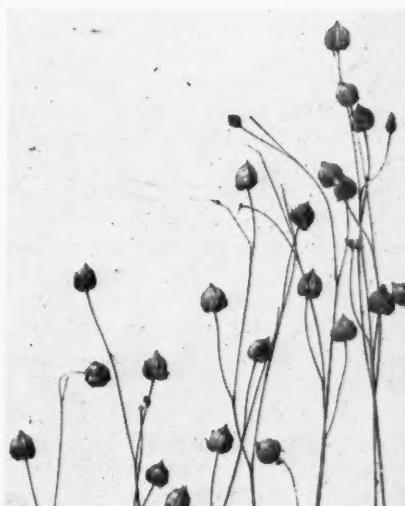
During the war years, a number of substitutes were tried but none produced entirely satisfactory results. The quality of these competitive materials is being continuously increased, but as yet none appears likely to offer a serious threat to linseed oil. The paint industry has, in fact, revealed that its chemists have recent-

ly developed methods of improving linseed oil.

The alkyd resins and various synthetic oils which have caused considerable discussion in recent years are not substitutes for linseed oil in the conventional sense. In general, they operate to widen the market for paint products by encouraging the use of paint on such products as automobiles and refrigerators. Linseed oil, in fact, is itself an important ingredient of both alkyds and many synthetic oils, so while there may be places where these materials cut into the sale of linseed oil there are many other occasions where they permit the use of linseed oil where it was formerly not feasible.

The dominant position of linseed oil in the paint industry is the result of its outstanding drying characteristics. The iodine numbers which are an index of

Flaxseed is threshed from bolls such as these.



drying qualities of several vegetable oils are listed below.

Oil	Iodine No.
Perilla	185-206
Linseed	170-195
Safflower	140-150
Hempseed	145-155
Soybean	115-140
Sunflower	120-135
Corn	115-120
Cottonseed	100-115

The iodine number of linseed oil is affected by the variety of flax and the climate. Such varieties as Redwing, Crystal and Dakota average about 10 points higher than Bison. Linseed oil of exceptionally high quality is produced in southern California where it is a winter crop and irrigation assures adequate moisture conditions. As a general rule linseed oil with an iodine number below 170 is not desired by the paint industry.

Although it is estimated that the paint and varnish industry will use over 82 percent of the 813,700,000 pounds of linseed oil which industry has set as its requirement for 1947, linseed oil is used for hundreds of other products.

OTHER USES FOR LINSEED OIL

Next in importance to paint is linoleum and oilcloth which will require approximately 114,800,000 pounds or about 15 percent of the total supply. The construction of new housing has accentuated the pent-up demand for linoleum that has accumulated throughout the war years.

Another major use for linseed oil is in printing inks where its rapid drying qualities make it nearly indispensable. The foundry industry has found that linseed oil possesses a number of characteristics which have made it the basic ingredient in core oil, so essential in the manufacturing of many castings.

Other uses include coated fabric, waterproof fabric, shade cloth, cleaning polish, floor wax and polish, patent leather, art colors, imitation leather, imitation rubber, pharmaceutical items, chemicals, soap, shingle stain, putty, caulking compounds, brake linings, food and shortening.

One bushel of flaxseed will yield about 2½ gallons of linseed oil and about 36 pounds of linseed oil meal. This important by-product of linseed oil crushing has established itself firmly in cattle and sheep rations. Dairy farmers continue to regard linseed oil meal as an extremely valuable protein supplement and regularly pay more for it on a unit of protein basis than they do for other similar products. Beef cattle feeders have high regard for linseed oil meal, especially in the production of prime or luxury meats.

While other oil meals have proved more satisfactory in hog and poultry rations, it is a coincidence that the principal outlet for linseed oil meal lies in the beef and dairy herds which populate the very areas where it is produced.



Flaxseed as it comes from the thresher. Further cleaning is often necessary in order to remove weed seeds.

There is virtually no waste in the entire flax crop, for even the straw is utilized. Cigaret papers, fine stationery, paper currency, rugs, and insulation material all require the same flax straw that only a few years ago was regularly burned by farmers. They could find no other satisfactory method of disposing of the tough, fibrous stems which do not rot as readily as other straw. This return from straw is therefore clear profit and makes flax growing more attractive to the farmer.

Fibre flax, a variety distinct from seed flax, is grown on a small scale in Oregon where it supports the only linen textile industry remaining in the United States.

The Flax Development Committee was first organized about 35 years ago for the purpose of encouraging the production of flax. With Charles Nolan of National Lead Co. as chairman, this organization was made up of industrial users of flax products. It held annual meetings in Minneapolis and gave considerable financial support to flax research being carried out in such agricultural colleges as those of North Dakota and Minnesota. After his death, Nolan was succeeded by Leo P. Nemzek of the same organization.

In 1931 the Flax Development Committee was disbanded only to be reorganized

5 years later under the chairmanship of T. L. Daniels of Archer-Daniels-Midland Co. This group in turn established and became part of the Flax Institute of the United States. Dr. H. L. Walster of North Dakota State Agricultural College and Walter M. Gilruth, Pittsburgh Plate Glass Co. have been president and secretary respectively of this organization since its inception.

The Flax Institute today includes members from 13 state universities and agricultural colleges in the United States and Canada as well as representatives of industry. The Institute coordinates an extensive research program and engages in an active educational program on proper methods of flax growing. This campaign is aimed to introduce modern cultural methods to every farm in the flax belt.

The future of flax production in the United States depends upon many factors. Some of the most significant are summarized here.

WORLD MARKET

The average annual world production of flaxseed for the period 1930-1939 has been estimated at 142 million bushels. It rose

somewhat in the early years of the war but has declined since 1943. The 1946 estimate has been set at 132 million bushels. Argentina is the major producing and exporting nation. Russia, the United States, India, and Canada are the other important producers with the United States alone showing a definite trend toward larger plantings.

Each year since 1908 this country has been forced to import a major portion of its flax seed—largely from South America. Because of the political situation in Argentina and the diversion of a large proportion of the South American crop to Europe, there seems to be little chance that there will be sufficient imports to materially relieve the acute domestic shortage for some time.

DEMAND FOR PRODUCTS

Although the war brought a greatly increased domestic consumption of linseed oil, it appears likely that the demand will remain high and possibly increase for some time. Official estimates on domestic utilization of oil are shown below.

1935-39 ave.	519,000,000
1941	816,000,000
1942	832,000,000
1943	783,000,000*
1944	702,000,000*
1945	652,000,000*
Est. 1947-8	800,000,000

* Note effect of government restrictions on use.

ECONOMICS OF FLAX GROWING

Ever since 1904, farmers in the principal flax states have been receiving a higher return per acre from flax than from any other major cash crop. Several erroneous beliefs such as that of flax being hard on the land and being a risky crop have deterred farmers from growing the acreage that would normally be expected of so profitable a crop. The program of the Flax Institute is gradually dispelling these myths.

The following table is based on prices of October 15, 1946 when flax brought \$4 per bushel. When government ceilings were removed 2 days later the price soared to \$7.25 per bushel where it appears to have levelled off.

AVERAGE CASH RETURN PER ACRE (1946)

	Spring Wheat	Oats	Barley	Flax-seed
Montana	\$27.75	\$28.86	\$30.09	\$25.41
No. Dak.	26.33	17.94	27.60	26.25
So. Dak.	28.20	21.66	31.63	37.70
Minn.	36.86	27.75	44.10	41.69
Iowa	37.40	29.64	43.40	56.85
Kansas	23.49	21.76	24.50	
U.S. Ave.	\$29.52	\$28.40	\$34.29	\$36.48

(Based on estimated yields October 1, and farm prices of October 15, as reported by B. A. E. in "Agricultural Prices," a mimeographed release dated October 29, 1946.)

GOVERNMENT POLICY

In recent years flax, like other critical war crops, has been extremely sensitive to government pressure. In recognition of the vital need for increasing the domestic production of flaxseed, the federal government has set the 1947 flax goal at 5 million acres, practically double the 1946 planting. The 1947 crop will be supported at \$6 per bushel. The price was established on January 10, 1947, and represents a \$2 increase over the \$4 price guaranteed on September, 1946.

FLAX RESEARCH

While the above factors will exert a powerful influence in increasing flax production in the next few years, in the long run it is continuing research that is expected to make flax a more attractive and profitable crop to the American farmer.

While industrial chemists and engineers are conducting biochemical studies of linseed oil and devising improved methods of processing flax fibre, crop specialists in a number of agricultural colleges are quietly at

work on a coordinated research program. Plant breeders are examining thousands of new crosses and selections each year. Bison, the original wilt resistant flax has given way to varieties that are higher yielding, also wilt and rust resistant.

Other studies are in progress to learn more about the effects of fertilizers, methods of weed control, rotations, flax diseases, and various cultural methods. Although it is one of mankind's oldest crops, flax growing has been almost completely revolutionized in the past 20 years. Yet, on many aspects of the crop, research has only begun.

Flax is here to stay!

— s b d —

MANCHURIAN EXPORTS

A total of 250,000 tons of soybeans, one of the principal products of Manchuria, is expected to be exported in 1947, according to the Central Trust.

A consignment of 10,000 tons was exported recently, while another consignment of 20,000 tons is expected in Shanghai by the end of December.



NARROW ROWS TURN OUT MORE BEANS

Soybeans turn out greater yields when grown in narrow rows than when planted in standard corn row widths, crop experts generally agree.

This belief was borne out by the extensive grower survey carried out by J. W. Calland, of Central Soya Co., in Illinois, Indiana and Ohio in 1945. Calland found that in Illinois beans planted in 24 inch rows averaged 2.6 bushels per acre more than beans in 39 inch rows. In Ohio, 21 inch rows yielded 6 bushels more beans than those in 38 inch rows.

Growers generally will not be able to realize this advantage of planting in narrow rows until the necessary planting and cul-



tivating equipment, as shown here, is available.

At top is a four-row tractor bean drill, at right above a bean and beet cultivator operating in narrow-rowed soybeans.

PROSPECTS are Bright

FOR SOYBEANS IN 1947

• From a paper presented at the Agronomy Department seminar Purdue University. Author is director of agronomic research for Central Soya Co., Inc.

By J. W. CALLAND

Farm crop goals call for 19 percent more soybean acreage in 1947. Present indications are that Cornbelt farmers may plant even more soybeans next spring than they planted during the war years. The present price ratio of soybeans and corn is considered quite favorable to the soybean crop.

Beginning with 1942 soybean production in the United States doubled and continued at this level throughout the war. This expansion occurred despite the fact that under OPA price controls the price the farmer received for a bushel of soybeans during that period was usually less than twice the price of a bushel of corn. This is a lower price ratio than many farmers think they should have for soybeans to equal corn in profit per acre. Recently, however, following the removal of price controls, a bushel of soybeans has been worth closer to three times as much as one of corn. Since it appears likely that something near this price relation may exist at planting time next spring there is every reason to expect more soybeans to be planted.

The present favorable price for soybeans is due to a serious world shortage of fats and oils and a high demand for both oils and high-protein feed in this country. Sev-

eral European countries are said to be consuming fats and oils at less than 50 percent of their prewar consumption. The United States would probably consume another billion pounds of fats and oils this year if it were available.

The war forced about 95 percent of our soybean oil into food channels where it has supplied 47 percent of the fats used in shortening and 42 percent of the total used in margarine. Today more than 50 food products containing soybean oil are on our markets. Now as it is released from foods a considerable quantity of soybean oil is expected to go into paints. Our greatest shortage of industrial oils during the war has been drying oils. Linseed oil has been difficult to obtain from Argentina. Very little tung oil has been available from China and no perilla oil from Manchuria.

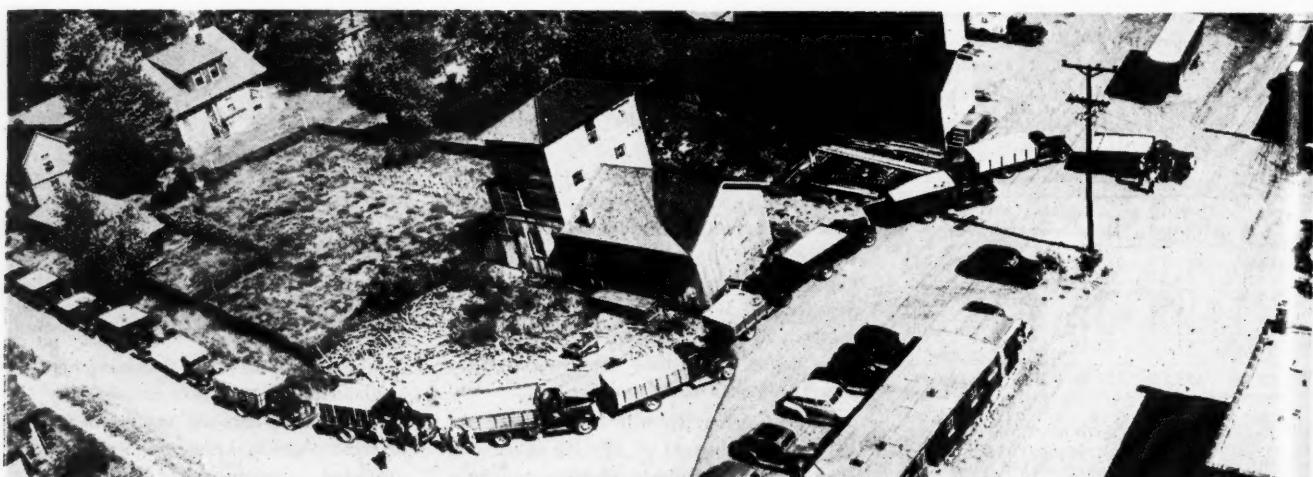
LESS FATS PRODUCED

The estimated world production of the 20 major fats and oils is down about 20 percent from prewar production but the amount available for world trade is down more than 50 percent. The big reduction during the war was in cocoanut and palm oils. But marine oils and world butter production also declined sharply. Probably 2 more years will be required to bring them up to prewar production. In the meantime the world demand for food oils is on the increase.

With no Manchurian soybeans coming into world markets there is a strong export demand for United States soybeans. Europe would like to have many millions of bushels of our 1946 crop. Her oilmills may still

A long line of trucks loaded with soybeans waiting to be unloaded at the elevator was a common sight last fall at harvest time in the soy belt. This photo was taken from the top of the new Missouri Farmers Association mill at Mexico, Mo. Despite modern unloading facilities the trucks couldn't be handled as fast as they arrived. The 300,000 bushel storage elevators of MFA were filled in 8 days' time after soybean harvest began.

—Photo courtesy Missouri Farmer.





PERENNIAL FAVORITE

NOD-O-GEN is a favorite, year after year, with legume growers. They have found through experience that it's cheap "crop insurance" for the legumes in their farm program, and that it helps those legumes build up the soil instead of robbing it of nitrogen.

For over thirty years NOD-O-GEN nitrogen fixing bacteria, in a special strain for each legume, has found increasing acceptance as an inoculator. Care in its production and marketing and a constant search for improved methods has resulted in steady growth in volume.

You can make a good profit for yourself, and serve your customers well at the same time, by handling

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You are invited to write for prices and other information about these items, designed to increase agricultural yields for your farmer customers.

Farm Laboratory Division

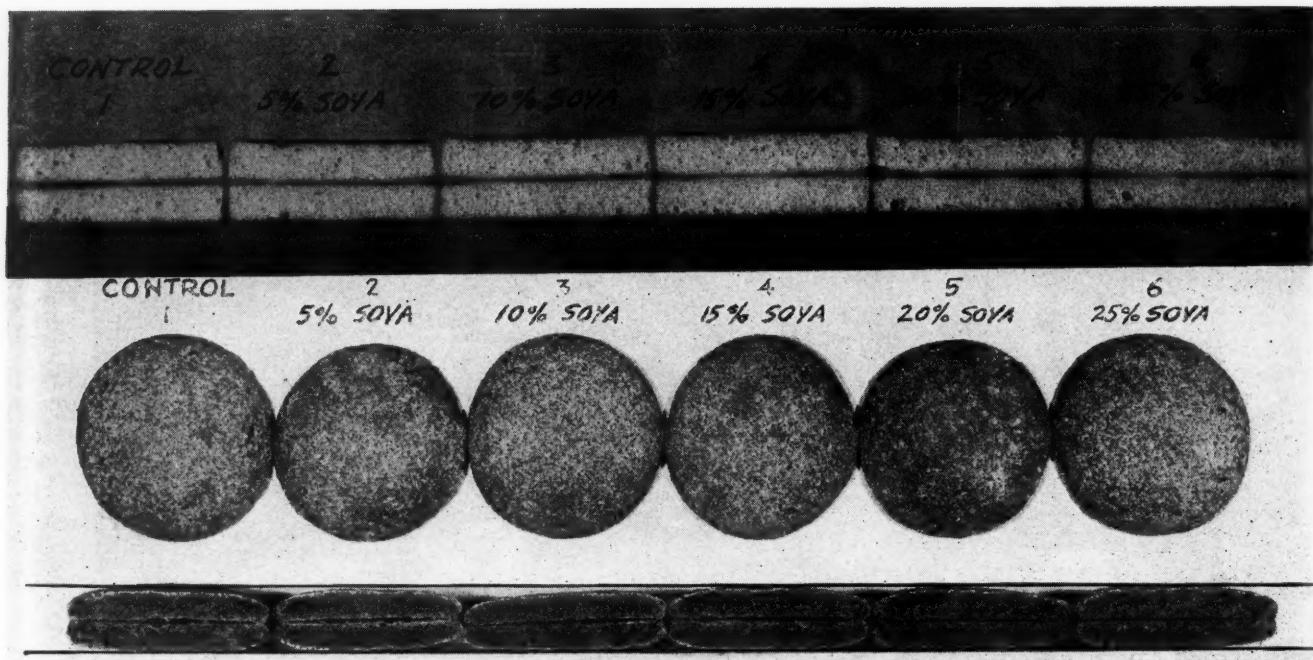
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At top, cross-sections of sponge layer cakes in which full-fat soy flour replaced cake flour in amounts indicated. Note only a slight change in cell structure in last two. At bottom are chocolate cookies in which full-fat soy flour replaced cake flour in amounts indicated. A study of the surface shows no change in this characteristic. No difference is noticeable in the cell structure.

—Photo courtesy Bakers Weekly.

SOY FLOUR IN BAKED PRODUCTS

Recent governmental restrictions on the quantitative use of wheat flour greatly quickened the interest of bakers in soy flour as a means of maintaining the volume of baked goods.

A worthwhile series of articles on the practical usage of soy flour in baked products has been published by *Bakers Weekly*. Written by Charles A. Glabau, the magazine's technical director, the articles, nine in all, appeared between June 24 and August 19 of last year. The series was entitled, "Valuable Contributions of Soya Flour in Baking."

Glabau's laboratory over a period of time has studied a number of soya flours from various types of soybeans. The articles concern experimental production of several types of cakes and cookies in which from 5 to 25 percent of the standard flour was replaced by full fat soy flour.

"One of the materials that has received a great deal of study in the past, as well as at the present time with renewed energy, is soya flour," says Glabau. "This flour has been in and out of bakeries in the past, and the reasons given are poly-fold. Since the soybean and its derivative products are relatively new in America, it has been necessary to carry on a great deal of research work on the part

of the producers, first in the direction of bean selection, and secondly, in the standardization of the products that may be derived from it.

The soybean, as we all know is a heavy carrier of fat or oil. Plant biologists have been impressed with the urgency of producing beans that will give a high oil yield. Such beans are not always of a variety that will produce a good soya flour from the standpoint of bakery use. Then too, there is a wide range of color.

"Within recent years manufacture of soya products have organized an association which has worked out a series of definitions and standards for soybean products, and this will help a great deal in stabilizing the flour for bakery use.

"Soy flour, like the beans from which it is derived, is highly nutritious, and from this standpoint alone makes a very worthwhile contribution to the American diet. This flour when of suitable character possesses worthwhile baking properties aside from the nutritional value, and therefore may be considered a permanent entity of many of the goods made in the bakery."

Bakery products covered by the articles included yellow layer, pound, chocolate layer, white layer, and sponge cakes; sugar, chocolate and spice cookies and vanilla jumbles.

Soy flour can be used to good advantage, as was shown in Glabau's various articles, in the production of the soft cakes of different kinds usually made by the baker, in cookies ranging from sugar to spice, and in the jumble type of cookie.

In most products it was possible to include up to 15 percent of soy flour without materially changing the characteristics of the finished product. Use of between 15 and 25 percent of soy flour does tend to change the product, but not always to its detriment. Some times the product with the higher content of soy flour scored as high or higher than the control.

— s b d —

MAJOR CROP FOR ARKANSAS FARMER

Soybeans have proven a good major cash crop for Andrew Hirt, of Wells Bayou community in Lincoln County, Ark., reports *Mid-South Cotton News*. Hirt told County Agent Robert W. Schroeder he has made a profit from them every year for the past 10.

This year 8,500 bushels were harvested from 460 acres or an average yield of 18½ bushels per acre. Last year 335 acres produced 6,000 bushels for an average yield of 18 bushels per acre.

Two varieties, Ogden and Volstate, were grown last year to give a longer combining period. The Ogden matured about two weeks ahead of the Volstate. Mr. Hirt began combining on October 3 and finished on October 26. Five combines were used.

process is so completely instrumented with automatic control devices that a crew of two men is sufficient to operate the average-sized plant.

Processing costs by the Solexol method depend on the size and type of installation; they may be as low as from a fraction of a cent to 3 cents per gallon of oil processed.

VALUABLE NEW PRODUCTS

In the refining of vegetable oils, Solexol has proved notably effective. While it is applicable to all types of vegetable oils, the process work to date has been concentrated on soybean oil and cottonseed oil.

Refining of soybean oil by this method has brought forth a diversity of high quality oil products, both edible and industrial, which have already established their marketability.

The economic significance of the respective oil fractions obtained by the Solexol method is best shown by citing a typical case. For example, 100 pounds of soybean oil, when processed, will yield various fractional oils—decolorized, deodorized, and refined—which are available to a number of industries. The yield includes: 68.5 pounds of high quality salad oil, 30 pounds of quick-drying paint oil, and 1.5 pounds of lecithin and other products.

One immediate benefit of the new method will be the production of quick-drying oils having qualities making them suitable for linseed oil replacement. News of these new products, some of many created by the process, is regarded as of major significance in the paint industry, due to the present critical shortage of linseed oil, an essential base of paints.

High quality drying oils for paint processors may be refined by the Solexol process from both marine and vegetable oils.

The Solexol process is equally useful to the paint industry in its applicability to vegetable oils. Soybean oil can be quickly and cheaply separated into a more efficient drying oil fraction and an improved edible product with high stability.

From the soybean oil, the process removes color bodies, odor, free fatty acids, lecithin, sterols, and anti-oxidants, and a substantial fraction suitable for salad oil, leaving finally the paint oil fraction having the iodine equivalent of linseed oil.

Several leading firms in the food fats industry have engaged the services of the Kellogg Co. for study of application of the process to their industry. While the method has proved applicable to a wide range of edible oils, including vegetable, animal and marine, its acceptance to date has been particularly noteworthy in the vegetable oil field.

The salad oil fraction, it is stated, commands a high market price due to its improved flavor and stability and the elimination of objectionable features when hydrogenated into shortenings and margarine

or when used for cooking, frying, or other edible purposes. Other important segments which are recovered include sterols for the manufacture of hormones and other pharmaceuticals.

Technical directors of various large soybean processing companies became convinced of the possibilities of the process and suggested that it might solve "one of the industry's biggest problems"—the task of eliminating economically and efficiently the undesirable flavors and odors which occur in the soybean oil fractions after being processed by current methods.

This increase in the flavor and stability of soybean oil for edible use is expected in the industry to result in developing broader consumer markets.

GLIDDEN ELECTS NEW OFFICERS

Adrian D. Joyce, president of The Glidden Co. since it was founded in 1917, was elected chairman of the board of directors, January 16.

He was succeeded as president by his son, Dwight P. Joyce, who has been a vice president and director of the company since 1927.

L. Y. Pulliam was elected a vice president of the Cleveland company, January 21.

Mr. Pulliam will have general direction of the Durkee Famous Foods division of the Glidden Co., succeeding the late R. W. Levenhagen, senior vice president and chairman of the executive committee, who died unexpectedly January 17.

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SOYS AND SOIL FERTILITY

By FRANK S. GARWOOD

Frank S. Garwood & Sons,
Stonington, Ill.

This is a rather dangerous subject for an ordinary farmer to discuss. There are so many factors that influence soybean yields, such as weather, diseases, and varieties, that it would be difficult to draw anything except very general conclusions on the effect a quarter century of soybean growing has had on our soil.

Well do I remember that some of the early promoters said soybeans were a legume,

and as such they would add much to the productivity of the soil. But the soil fertility people soon pointed out that soybeans were heavy feeders on calcium, phosphorus, potassium and other mineral elements; and that they did not add a large amount of nitrogen, even when combined and the straw returned to the soil.

Today we are raising larger yields of soybeans per acre than we did in the early 20's. But a large part of this increase is due to improved varieties and methods of culture. There are many instances in this section (south central Illinois) where the almost continuous growth of soybeans does not

show much if any lower yields now than in the beginning. This has led some farmers to believe that they improve rather than deplete the soil.

However, it seems to me—and I think a cross section of farmer opinion will bear me out—that in the last few years it has not been quite so easy to get those large yields as it was a few years back.

There is considerable interest in and some use of commercial fertilizer for soybeans. But to date the residual effect of commercial fertilizer which has been applied to the previous crop, generally corn, seems to be more effective than direct fertilization. There is perhaps one exception, and that is on soils testing low in potassium. Applications of high potassium fertilizers on these soils are giving increased soybean yields.

A few years ago it was the general opinion that calcium and phosphorus were the only major mineral elements needed on our highly productive soils. However, in the past 2 or 3 years, potassium, which most people thought was adequate for years to come, has been shown to be deficient on many farms. Soybeans, being heavy feeders of potassium, have undoubtedly hastened this depletion.

LESS PROTEIN IN CORN

In the production of corn over the years the protein content has dropped, even though better hybrids are now helping to raise the protein content. This is because we have not maintained our general soil fertility level. From this it might be expected that the extensive production of soybeans over a long period of time would also show a decline in the protein content. Such does not seem to be the case at present. Soybean mills have not noticed any reduction in the protein content. Apparently improved varieties and cultural practices have offset any such decline.

During the last 2 years which have been rather wet and cool, our difficulties have been increased by the presence of Brown

• The author is a director of the American Soybean Association. He has been growing soys for 25 years in an area that has been producing the crop more heavily and for a longer period of time than any other section of the U. S. See mention of him on page 5.



GARWOOD

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Stem Rot, especially where soybeans have followed soybeans. The presence of this disease makes it difficult to properly evaluate fertility problems.

Continued production of soybeans, especially when following soybeans for a period of years, has loosened some of our soils until erosion is becoming quite noticeable. Many tracts of land that have a considerable degree of slope have become badly eroded in the past 10 years. They probably should never have raised soybeans or any crop, unless terraced. Where good rotations have been maintained, erosion is not present or is so slight as not to be evident.

Where our soils have been properly handled, soybeans have not increased our top-soil loss. In fact, soybeans have a definite beneficial effect on the physical properties of some soils, by leaving them in a good state of tilth for succeeding crops.

In summing up, I would say that this immediate section will have to reduce its soybean acreage if it expects to maintain the general fertility level. During the past 4 years soybeans have varied from 33 to 36 percent of the total farm land, with some farms running as high as 50 to 75 percent. This indicates this section of Illinois is carrying too high a percentage of its farm land in soybeans.

Soybeans have a definite place in our farm rotation. But like most grain crops they are heavy users of the mineral elements of the soil, which we are now going to have to replace in order to maintain yields. Many farmers are becoming aware of this fact.

Perhaps a way to encourage farmers to maintain their soil fertility would be to change the federal income tax laws so they could deduct as an expense the cost of replacing those mineral elements that they sell in their grains. A deduction is now permitted for the depletion of oil and gas wells.

Soybeans are here to stay as one of our best cash crops. I don't think our fertility has suffered where we have used them as they should be used in the rotation.

— s b d —

CALLAND

(Continued from page 18)

a binder in manufactured sausages. Pressure is on the Food and Drug Administration to permit its use up to 3 percent in the new standards for white bread, rolls, and buns. UNRRA has used soy flour in the equivalent of 18 million bushels of soybeans in feeding the starving peoples of the world. Soybean soup has been sent to China, the country from which we got our first soybean seed.

Many things are being done for the improvement of soybeans and soybean products. Research programs are being conducted in dozens of laboratories across the country. A great amount of work is being done in the development of new and improved varieties at all of the soybean states

in cooperation with the U. S. Regional Soybean Laboratory. Studies are being made by the universities and experiment stations to improve methods and machinery used in the production of the soybean crop, with a view of improving farm practices and increasing yields.

With the definite aim of increasing the demand for soybeans, research programs are being conducted by the soybean industry and by government agencies such as the Northern Regional Research Laboratory. These research programs are directed toward the development of new or improved methods of separating the oil from the seed, improvement of flavor and color of both oil and meal, development of new industrial raw materials from the soybean and the modifica-

tion of the oil to increase its utilization in both the food and drying oil fields.

The contributions of such research to the processing and utilization of soybean products are excellent insurance to soybean growers for the maintenance or expansion of markets for their soybeans in the future. Except in the event of a severe business depression in the United States there appears to be nothing ahead to interfere with a strong demand for soybeans.

— s b d —

A. R. Kemp, Knox County, Ill., says that soybean yields in his area varied from 18 bushels for the Earlyana's to 24.3 bushels in the Lincoln beans. Second highest yields were from Mukden with 23.4 bushels.

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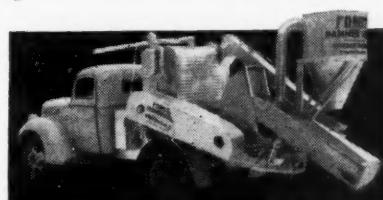
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OILSEED MEALS

(Continued from page 13)

is wise to conserve fish meal for dry lot rations.

A distinguishing feature of the best accepted method of utilizing oilseed meals in hog concentrates is the differentiation between pasture and dry lot concentrates. Although it is practical to produce a 40 percent protein formula for pasture feeding it is not possible to incorporate proper levels of alfalfa in a dry lot concentrate along with economical levels of soybean oil meal and still guarantee 40 percent protein. For dry lot feeding the feed manufacturer has the ever-pressing problem of de-empha-



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1946 CATALOG READY

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BINS

sizing protein level in an effort to give the farmer a more practical, efficient and economical dry lot concentrate.

TABLE 1

	tons	Corn balanced by respective protein feeds tons
Tankage and meat scraps	675	5,400
Fish meal	200	1,800
Dried skim milk, buttermilk and whey	85	170
Dried milk-fed on farms	1,460	5,110
Soybean oil meal	3,375	16,875
Linseed oil meal	400	1,400
Corn gluten feed and meal	950	3,325
Cottonseed meal	1,475	5,900
Peanut oil meal	100	500
Total	8,720	40,480
Estimated quantity of corn fed, basis 40% of 1945 crop		33,600

Corn constitutes the principal carbonaceous feed for hogs. Approximately 40 percent of the total domestic crop is fed to hogs. Efficient pork production requires the use of adequate kinds and amounts of protein to balance the corn. The supply of animal and marine protein falls far short of meeting this need. The judicious use of oilseed meals is necessary to properly balance American hog rations.

The proper use of oilseed meals in hog rations began with the development of the "trinity mixture." Experience has shown that other oilseed meals can satisfactorily replace linseed oil meal in the "trinity mixture." It has also been demonstrated that soybean oil meal can be successfully substituted for tankage in growing and fattening rations provided adequate mineral and vitamin supplementations are made. When

soybean oil meal is used as the principal supplement protein, further improvement can be brought about by a combination of one part of fish meal to nine parts of soybean oil meal.

Although soybean oil meal ranks high as an excellent protein supplement for hogs, the most efficient use of the nation's protein supply requires that it be used in combination with other vegetable and animal proteins. Hog concentrate formulations that combine a blend of proteins with needed vitamins and mineral carriers, provided a greater opportunity for efficient, low cost pork production than any single protein supplement.

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BUCKEYE CO. BUYS MISSOURI MILL

W. W. Hastings, an executive of the Buckeye Cotton Oil Co. of Cincinnati, Ohio announced that his company had completed arrangements for the purchase from the South East Missouri Oil Co., of the soybean oil extraction mill now under construction at New Madrid, Mo. The purchase price was not revealed.

The mill, which is expected to be in operation by late summer, will be one of 15 soybean and cottonseed oil crushing and extraction mills being operated by the Buckeye organization in the south and southeast. Other units are located at Atlanta, Macon and Augusta, Ga.; Charlotte and Raleigh, N.C.; Selma, Uniontown and Montgomery, Ala.; Greenwood, Jackson, and Corinth, Miss.; Little Rock, Ark.; Louisville, Ky. and Memphis, Tenn.

The Buckeye Cotton Oil Company is a subsidiary of The Procter & Gamble Company of Cincinnati.

TABLE 2—AMINO ACID ANALYSIS—OIL SEED MEALS
(Dried Skim Milk and Corn for Comparison)

Amino acid	Dried skim milk	Linseed oil meal	Soybean oil meal	Cottonseed oil meal	Corn gluten meal	Peanut oil meal	Whole corn
Arginine	34%	33%	45%	42%	42%	45%	0%
Histidine	0.85	0.49	1.03	1.09	0.71	0.95	0.22
Lysine	2.55	0.82	2.43	1.13	0.46	1.35	0.23
Tyrosine	1.80	1.68	1.85	1.34	2.60	1.98	0.55
Phenylalanine	1.93	1.85	1.85	2.77	2.77	2.43	0.41
Tryptophane	0.54	0.63	0.63	0.55	0.25	0.45	0.05
Cystine	0.37	0.63	0.59	0.84	0.50	0.72	0.10
Methionine	1.12	0.99	0.81	0.67	2.31	0.41	..
Threonine	1.56	1.68	1.80	1.26	1.68	0.68	0.32
Leucine	5.10	..	3.60	5.88	10.50	4.50	1.94
Isoleucine	1.53	1.15	1.80	1.47	2.10	1.58	0.32
Valine	2.20	1.98	1.58	2.94	2.10	3.15	0.41
Glycine	0.13	..	0.45	2.22	1.80	2.52	..

THE AMINO ACID REQUIREMENTS OF GROWING RATS

Ref: Rose, W. C.; Science 86:298-300 (1937)	Lysine	1.0	Valine	0.7	
Arginine	0.2	
Histidine	0.4	Methionine	0.6	Phenylalanine	0.7
Isoleucine	0.5	Tryptophane	0.2	Threonine	0.6
Leucine	0.9				

Reference: Calculations of amino acid values from Amino Acid Composition of Proteins and Foods. Block and Bohling. Thomas, 1945.

The Amino Acids. Proceedings fifth annual meeting Nutrition Council of the Feed Manufacturers Association, pp 8-15; R. J. Block, May 3-5, 1945.

Prepared by: Archer-Daniels-Midland Co., Biological Research Division, Oct. 17, 1946.

OHIO MEETING WILL BE HELD MARCH 14

Soybean processors and growers of Ohio and agronomists of Ohio State University, the Agricultural Extension Service and the Ohio Agricultural Experiment Station will hold a 1-day meeting March 14 at the Experiment Station at Wooster to discuss some recent developments of the soybean research program.

A cordial invitation to attend is extended to out-of-state people interested in soybeans.

The program will start at 9:45 a. m. Hotel reservations should be made well in advance of the meeting.

The program will include:

"Problems of Soybean Production. What Is Research Doing About It," R. E. Yoder, chief agronomy department, Ohio Agricultural Experiment Station, Wooster.

"Up-to-date Cultural Practices," D. F. Beard, extension agronomist, Ohio State University, Columbus.

"New Soybean Varieties," Lewis C. Saboe, assistant agronomist, OAES and USDA, Columbus.

"The Problem of Soybean Diseases in Ohio," C. C. Allison, extension plant pathologist, OSU, Columbus.

"The Evaluation of Soybean Products in Animal Nutrition," C. F. Monroe, associate dairy industry, OAES, Wooster, and W. L. Robison, associate animal industry, OAES, Wooster.

"Soybean Seed Stocks for 1947," J. W. Calland, director of agronomic research, Central Soya Co.

"New Research Techniques in Soybean Production." "1. Tagged Atoms in Plant Physiology Research," J. D. Sayre, associate agronomist, OAES and USDA, Wooster; "2. Soybean Nutrition and Development Studies," G. W. Volk, associate agronomist OAES, Wooster; "3. Demonstration of Spectroscopic Analysis," Marion Wolf, laboratory assistant in agronomy, OAES, Wooster.

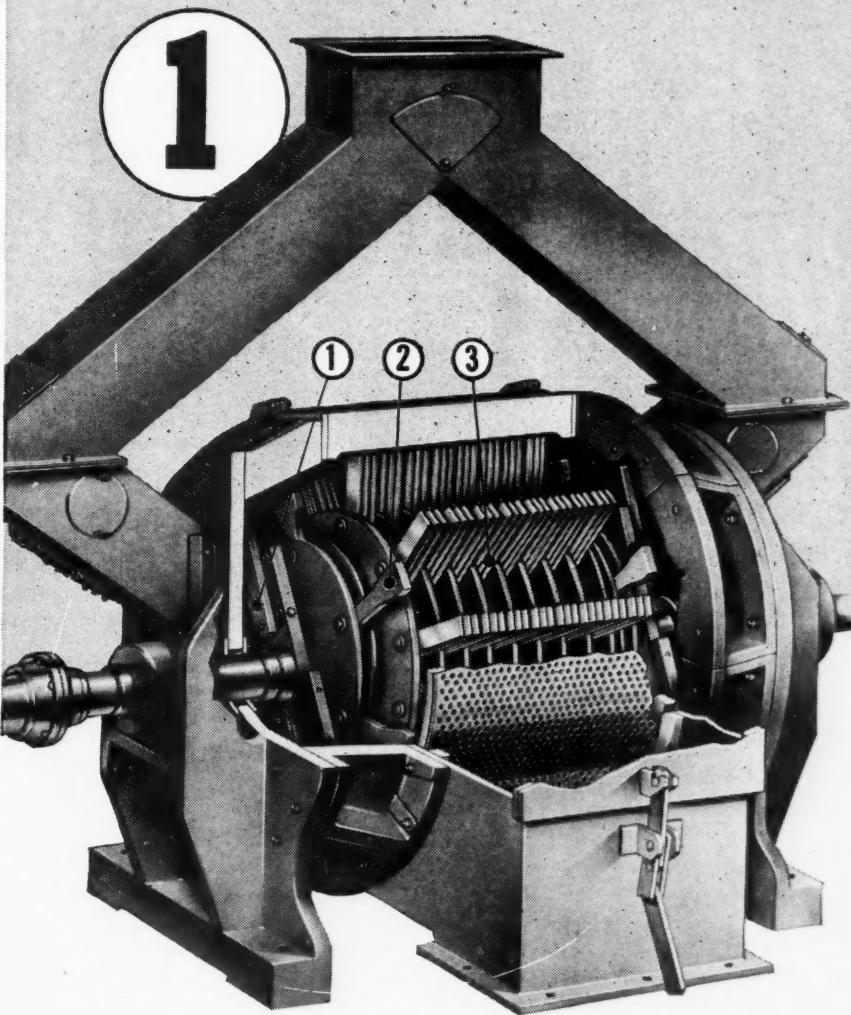
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CANADA PLANS OILSEED ACREAGE EXPANSION

Canada's 1947 agricultural program, as planned by the Dominion-Provincial Conference in December, calls for an expansion in oilseed acreages. Flaxseed acreage was not decided upon but the objective is for a production of 10 to 15 million bushels, most of which will be grown in the Prairie Provinces. If an acreage increase is to be secured next season in line with the desired production, additional government support in the form of price inducements will be required.

Goals for soybeans, rapeseed, and sunflower seed are 60,000, 26,500, and 28,000 acres, respectively. The soybean goal, which represents a 22 percent increase over the 1946 objective, is slightly larger than the actual planted acreage for last season.

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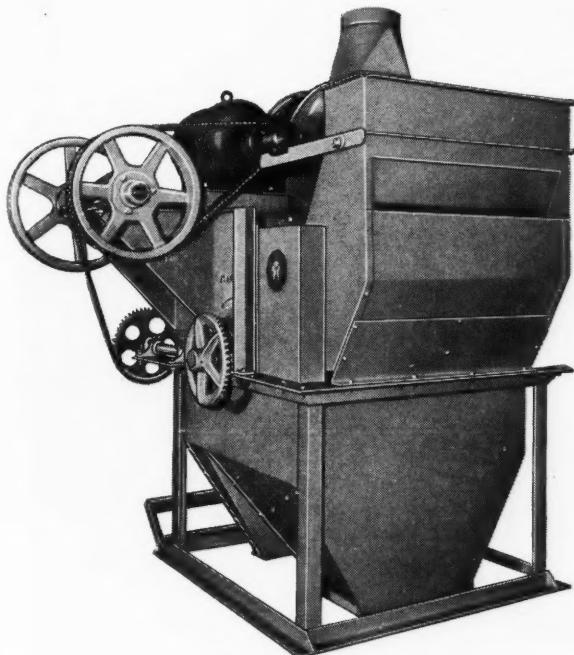
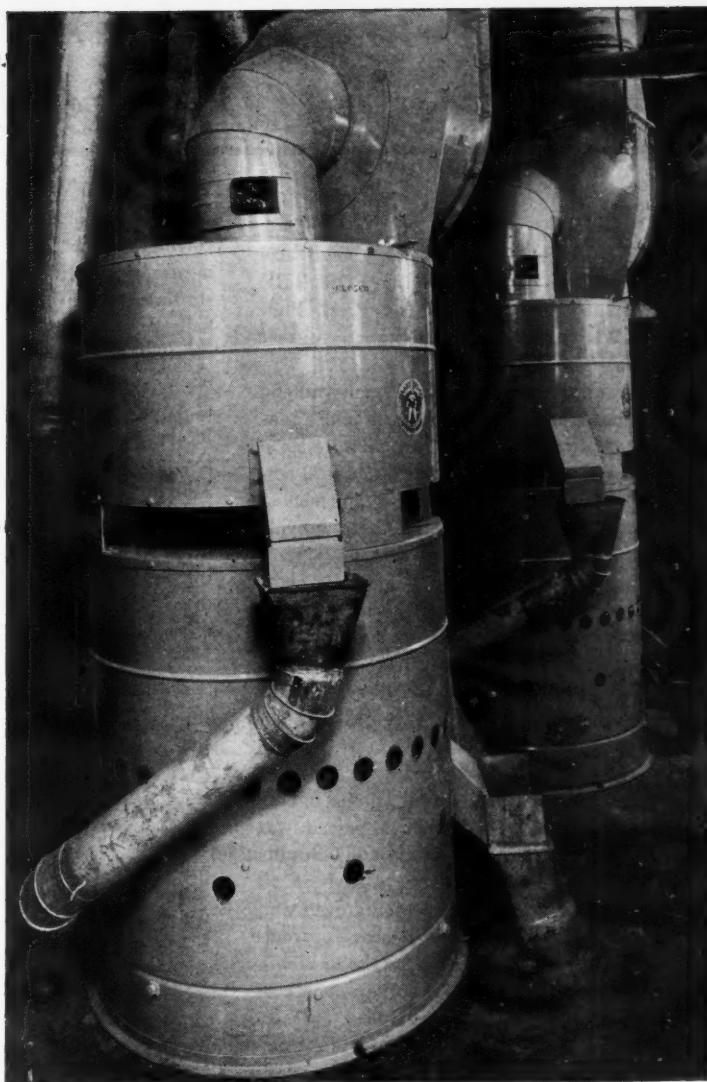
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Publications

Feeding

THE AVAILABILITY OF SOYBEAN OIL MEAL PHOSPHORUS FOR THE RAT. By R. R. Spitzer and P. H. Phillips, Wisconsin Experiment Station. *Journal of Nutrition*.

Weanling rats were fed a semi-synthetic diet containing 14 percent fibrin and a low-calcium low-phosphorus salt mixture as a basal ration. The ration furnished 0.28 percent phosphorus and was supplemented with either CaHPO_4 or CaCO_3 to provide approximately 0.6 percent calcium. Additions of various amounts of inorganic phosphorus (up to 0.3 percent) were made in connection with the basal diet. Substitution of 14 percent fibrin with equivalent amounts of casein (14 percent) or soybean oil meal in amounts to provide 14 percent protein was also made.

Soybean oil meals prepared by the expeller or solvent process were found to contain 0.66 percent P, of which 58 percent was in the form of phytin or phytic acid. Results showed that the phosphorus of soybean oil meal was readily available for growth and bone formation. Additional heat apparently had no measurable effect on the availability of the phosphorus. The phosphorus of casein was also readily available.

The protein of soybean oil meal was practically equal to that of blood fibrin. Both of these proteins proved superior to casein when used at the 14 percent level.

SOYBEAN OIL MEAL IN RATIONS FOR YOUNG CHICKS. *Bulletin 491*, Missouri Agricultural Experiment Station.

The greater use of protein concentrates of vegetable origin became necessary as a result of the acute protein shortage. The use of milkless diets for chicks became imperative and sources of riboflavin other than from milk products became necessary.

Numerous feeding tests were made involving the use of various proportions of meat scrap and soybean oil meal in chick-starter rations. The rations containing one-half the meat scrap ordinarily used and the meatless chick starter rations were equally effective in producing growth up to the age of 8 weeks. There was no appreciable difference in egg production or mortality in the laying flocks from the time housed to March 1.

Soybeans, either baked or raw, resulted in much slower growth during the 8 week feeding period. The soybean fed chicks were 61 to 65 percent as heavy as those fed similar amounts of soybean oil meal.

LIMITATIONS IN THE USE OF SOYBEAN PRODUCTS IN POULTRY FEEDING. *58th Annual Report Colorado Experiment Station*.

This project attempted to determine the cause of poor reproduction encountered in feeding high soybean rations to poultry and whether the goitrogenic factor of soybeans is identical to the hatchability factor. The goitrogenic factor is not present in soybean ash and is not extractable from the meal by chloroform or ether; it is not destroyed by heating or autoclaving at 250° F. for 2½ hours.

A lifespan experiment was started in which birds were fed rations containing varying amounts of soybean oil meal throughout the life cycle. Chicks fed soybean oil meal as the only protein supplement made as satisfactory early growth as those fed a meat-scrap-supplemented ration. Birds fed a ration containing soybean oil meal as the sole protein supplement were slightly later maturing than those fed rations containing meat scrap. Hatchability in the experiment decreased consistently from 75 percent to

27 percent as the amount of soybean oil meal increased from 50 percent to 100 percent of the supplementary protein.

A hatchability experiment was conducted testing the effect of various substances upon hatchability of eggs from hens fed high levels of soybeans. A liver preparation fed at 0.25 percent of the ration increased hatchability from 41 percent to 75 percent. Casein feeding resulted in only a slight increase in hatchability.

Cyanogenic substances may be removed from linseed meal by treatment with 50 percent ethanol. This residue supplements soybean protein for growth.

Seed Treatment

SEED TREATMENT TESTS AT NORTH CAROLINA STATION. *Research and Farming*, 1945. North Carolina Experiment Station, Raleigh, N. C.

Seed treatment tests on soybeans were carried out at three locations in 1945 to determine if seed treatment would result in a worthwhile increase in stands.

All treatments gave some increase in number of plants. For most chemicals used, however, the increases due to seed treatment were not large enough to be significant.

Of nine treatments used, the one with Arasan produced significant increases most consistently.

Fertilizers

EXPERIMENTS WITH FERTILIZERS AT NORTH CAROLINA STATION. *Research and Farming*. Raleigh, N. C.

A number of experiments with fertilizers on land growing soybeans are covered in the 68th annual report of the North Carolina Agricultural Experiment Station. They include: experiments at several locations to learn the effects of sidedressing with nitrogen, the effect of potassium and magnesium on pod formation, and the effect of lime and phosphate on soybeans.

Nitrogen not profitable. Fifty pounds of nitrogen per acre were applied about July

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SOYBEAN DIGEST

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ROESLING, MONROE & CO. BROKERS

CRUDE AND REFINED VEGETABLE OILS

CARL H. SMITH

GEO. K. DAHLIN

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Our Organization Will Complement Your Own to Buy or Sell

WOODSON - TENENT LABORATORIES

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Analytical Chemists

SOYBEANS - CAKE - MEALS - OILS

Laboratories: Memphis, Tenn., Little Rock, Ark., Blytheville, Ark., Cairo, Ill.

600
"OVER 500 MILLION DOLLARS WORTH OF PRODUCTS ANALYZED SINCE 1935"



Quality — Appearance — Strength — these factors are all "in the bag" when you use FULTON BAGS for your meal, pellets and feeds. FULTON artcraft printing of your brand is a valuable sales aid. Remember, too, that your soybean meal will not heat when stored in cotton bags. For the best in cotton bags, always specify FULTON.

FULTON BAG & COTTON MILLS

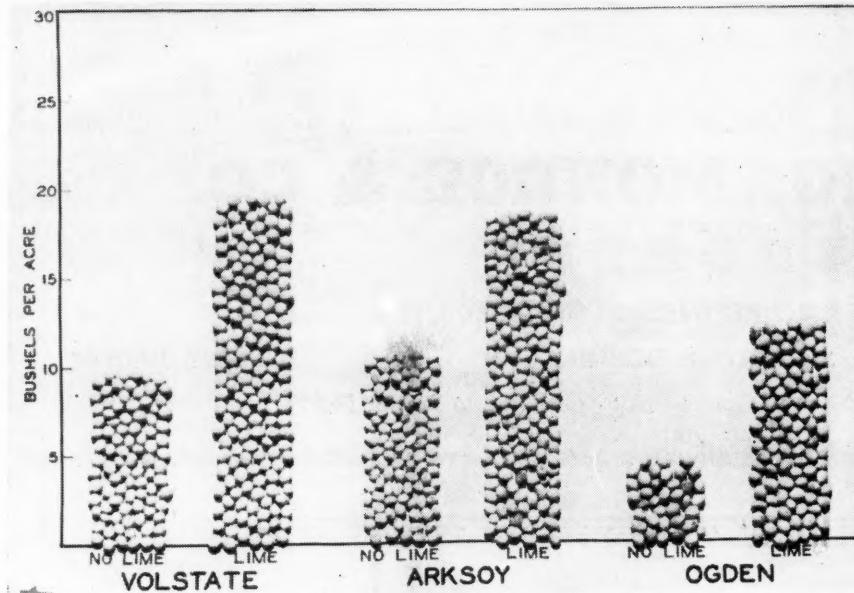
Manufacturers Since 1870

Atlanta St. Louis Dallas Minneapolis Denver
New Orleans Kansas City, Kan. New York

from RAW COTTON to FINISHED BAGS..

FULTON BAGS made in our plants from the raw cotton to the finished bag assures you a safe and economical container for shipping soybean meal.





—Photo courtesy Better Crops With Plant Food.
Lime increased the yield of three varieties of soybeans grown on Norfolk loamy sand, Wilson County, N. C.

1. Lime was also applied at several rates, to learn if it affected the response to nitrogen.

The experiments were undertaken in an effort to learn if the nodule bacteria on the roots were able to fix enough nitrogen to supply the needs of the growing plants at the time the beans were forming rapidly.

Added nitrogen *did* increase yields 3.3 bushels per acre on one soil that had a pH of 4.2. But when lime was broadcast there was no response to nitrogen at this or any other location.

Effect of Potassium and Magnesium on Pod Formation and on Seed Characteristics. It was known that applications of potassium and magnesium to soil growing soybeans did increase yields but not in what way yields were increased.

Was it through increasing the number of pods, their retention on the plant, the size of pods, their degree of filling or seed size?

It was found that additions of potash increased the number of pods formed per plant, as well as pod retention. With no potash 57 percent of the pods were dropped after September 5. When sufficient potash was used 41 percent were dropped.

There was little effect on pod size, but potash applications greatly increased the amount of filling of the pods. They also increased seed size by 28 percent, and decreased the number of poor quality beans from 37 percent to 3 percent.

It was found that addition of either potash or magnesium delayed maturity as shown by the moisture content of the beans.

The effect of magnesium on the crop otherwise was not marked.

Soybeans Need Lime. A series of experiments was begun on several soil types in 1945 to study the relation of soil properties and lime for soybeans. Three different rates of two types of limestone were used.

Results the first year showed increased

yields from lime applications at all locations. On a Portsmouth sandy loam in Pamlico County, yields were increased from 22 to 39 bushels. This particular soil has a very high lime requirement.

It is planned to carry on the experiments with lime for 2 more years.

Some Soils Need Phosphate. Soils very low in soluble phosphoric acid produce greatly increased yields of soybeans when phosphate is placed in the row at planting time. On a soil containing 32 pounds of phosphoric acid per acre, applications of 60 pounds of phosphate increased yield from slightly over 6 to 35 bushels per acre.

In general, the response to treatment is related to the amount of phosphoric acid in the soil already. Very little can be expected on soils containing more than 150 pounds of soluble phosphoric acid.

FERTILIZING SOYBEANS. By W. L. Nelson, research associate professor of agronomy, North Carolina Experiment Station, Raleigh, in *Research and Farming*.

Little fertilizer or lime is used on soybeans or on the crops with which soybeans are rotated in North Carolina. As a result and in spite of improved varieties, the yields are very low on the majority of fields. The state yield averages only about 12 bushels per acre.

Fertility experiments conducted on soybean fields in the Coastal Plain have shown that on many soils applications of either lime or potash or both increase yields. On certain soils additions of phosphate are beneficial.

It is believed that yields of 25 to 40 bushels of soybeans can be regularly expected if lime is added to the soil in accordance with its requirements and potash and phosphorus supplied as needed.

This is **YOUR** Advertisement!

... its business is
to sell YOUR soybeans

● Behind it is a remarkable story one that had its beginning over hundred years ago, with the entry of the Kellogg family into the vegetable oil business.

Important incidents in this story are the foundation of the Kellogg Research Laboratory over 30 years ago, the building of the first Kellogg Soybean processing plant 13 years ago, years of chemical research in the problem of making a true drying oil from Soybeans, and finally, the introduction last year of Kellogg's DRISOY.

* * *

This advertisement is addressed to paint manufacturers and is reprinted here from their own magazines. As it indicates, the story is still unfinished. But the happy ending is in sight, with greatly increased use of soybean oil and a sure support for the marketing of an even larger U.S. crop of soybeans.

SPENCER KELLOGG AND SONS, INC.

"The First Name in Vegetable Oil

Buyers and processors of soybeans, mills of soybean flours and meal, refiners of edible soybean oil, producers of soybean shortenings, manufacturers and refiners of industrial soybean oils, researchers and developers of new and valuable soybean products.

KELLOGG SOYBEAN PLANTS ARE LOCATED AT:

BUFFALO, N. Y.
DECATUR, ILL.
DES MOINES, IOWA

BELLEVUE, W. Va.
CHICAGO
MINNEAPOLIS, MINN.

TEST DRISOY IN OUTSIDE HOUSE PAINTS



● In a peace time economy, say agricultural and vegetable oil authorities, soybean oil can be produced and sold at a lower price than linseed oil. Therefore, DRISOY, *a soybean oil that dries*, offers opportunities to the paint industry to produce quality products at a lower price.

Outside house paint is a field for this material that demands special consideration. Its normal consumption is large, and lower prices, making good paint available to more people, act definitely to increase that consumption.

Therefore, we say, "Test DRISOY in outside house paints now". DRISOY has been available for experimental purposes for over a year and much has been discovered about its adaptability to this field. Write to the Technical Service Department of this company for their published data, and above all make your own tests; apply DRISOY in your own formulations; expose panels of DRISOY paint to the weather; compare it to your standard products. Be prepared for the changed conditions that the introduction of DRISOY will make in outside house paints.

The First Name In
Vegetable Oils



SPENCER KELLOGG AND SONS, INC.
Buffalo 5, N. Y.

GRITS and FLAKES...

FROM THE WORLD OF SOY

J. O. McClintock, vice president of Continental Grain Co., was elected president of the Chicago Board of Trade January 13. He defeated Harry C. Schaack, who served as exchange president for the past 2½ years.

* * * *

Thirty veteran employees of Allied Mills, Inc., were honored at the firm's annual service award banquet in Omaha January 6. Vice President Leo T. Murphy presided.

* * * *

The 12th annual Chemurgic Conference of Agriculture, industry and science will be held in Oklahoma City, Okla., March 26-29, E. L. Little, managing director, announces.

* * * *

Celebrating its 100th anniversary, Chase Bag Co., has issued the booklet, 100 YEARS EXPERIENCE IN MANUFACTURING BETTER BAGS.

* * * *

The experimental solvent process of Roach Soybean Mills, being perfected in cooperation with the Iowa Experiment Station, was described in a recent issue of the *Waverly (Iowa) Democrat*.

* * * *

The 38th annual meeting of the American Oil Chemists' Society will be held May 20-22 in New Orleans. Col. H. P. Newton of the Southern Regional Research Laboratory will be general chairman; A. M. Altschul of the same laboratory, program chairman.

* * * *

Dr. W. L. Burlison, head of the agronomy department, University of Illinois, recently presided at a program honoring J. C. Blair, dean emeritus of the Illinois College of Agriculture.

* * * *

Roger Drackett, Drackett Co., has been elected president of the Cincinnati Board of Trade, Inc.

* * * *

The retirement of G. M. Conrad as vice president and manager of the New Orleans branch of Chase Bag Co. has been announced. Mr. Conrad is regarded as a pioneer in the textile bag business.

* * * *

The Brooklyn sales division of Bemis Bro. Bag Co. has announced the opening of a sales office in Pittsburgh, Pa., under the management of Ellis H. Deitrick. The office is located at 6070-71 Jenkins Arcade, Pittsburgh 22, Pa.

* * * *

Whitney H. Eastman, vice president of General Mills, Inc., was recently elected president of the Minneapolis area council of Boy Scouts of America. Mr. Eastman has been active in Scouting for 18 years.

* * * *

Seedburo Equipment Co., Chicago, has appointed Paul K. Crowner sales representative for Iowa. Mr. Crowner was in the retail feed business at Geneseo, Ill., immediately before joining Seedburo.

* * * *

Portland (Ind.) Sun recently devoted many pages to the 50th anniversary of the Haynes Milling Co., of which Clarence E. Peters is president. Activities of the concern include the Haynes Soy Products, Inc., at Portland.

* * * *

Fred Houser, superintendent of the Memphis plant of the Bemis Bro. Bag Co., for 25 years, retired December 31. He is 71 years old.

* * * *

The solvent and screw press methods in use at the Springfield, Ohio, plant of the Farm Bureau Cooperative Association are described by two pages of pictures in December issue of *Electrified Industry*.

* * * *

Vasile "Tony" Antoniu, plant manager for the B. I. Weller Co., Chicago, was honored on his 25th anniversary with the company.

* * * *

St. Regis Paper Co. has purchased three paper mills from Time, Inc. The mills will add 180,000 tons annually to the company's production.

* * * *

The Feed Industry Council, Chicago, has published a report stating that for the current



LE ROY M. SMITH

LE ROY SMITH OF THE SEEDBULO CO. DEAD

Le Roy M. Smith, head of the Seedburo Equipment Co., Chicago, died at his home in Wilmette, Ill., December 31, after an illness of several months.

More than 35 years ago Mr. Smith first became interested in the seed and grain trades. At that time he was connected with the U. S. Department of Agriculture at Washington. The government was then urging terminal markets to buy and sell grain on a test basis, determining values by the dockage and moisture content basis. He decided it would be advantageous to the trade if some centrally located bureau could be formed through which the necessary testing equipment could be obtained. So the Seed Trade Reporting Bureau was launched to manufacture and sell equipment to determine weight and dockage of grain and seed on a scientific basis.

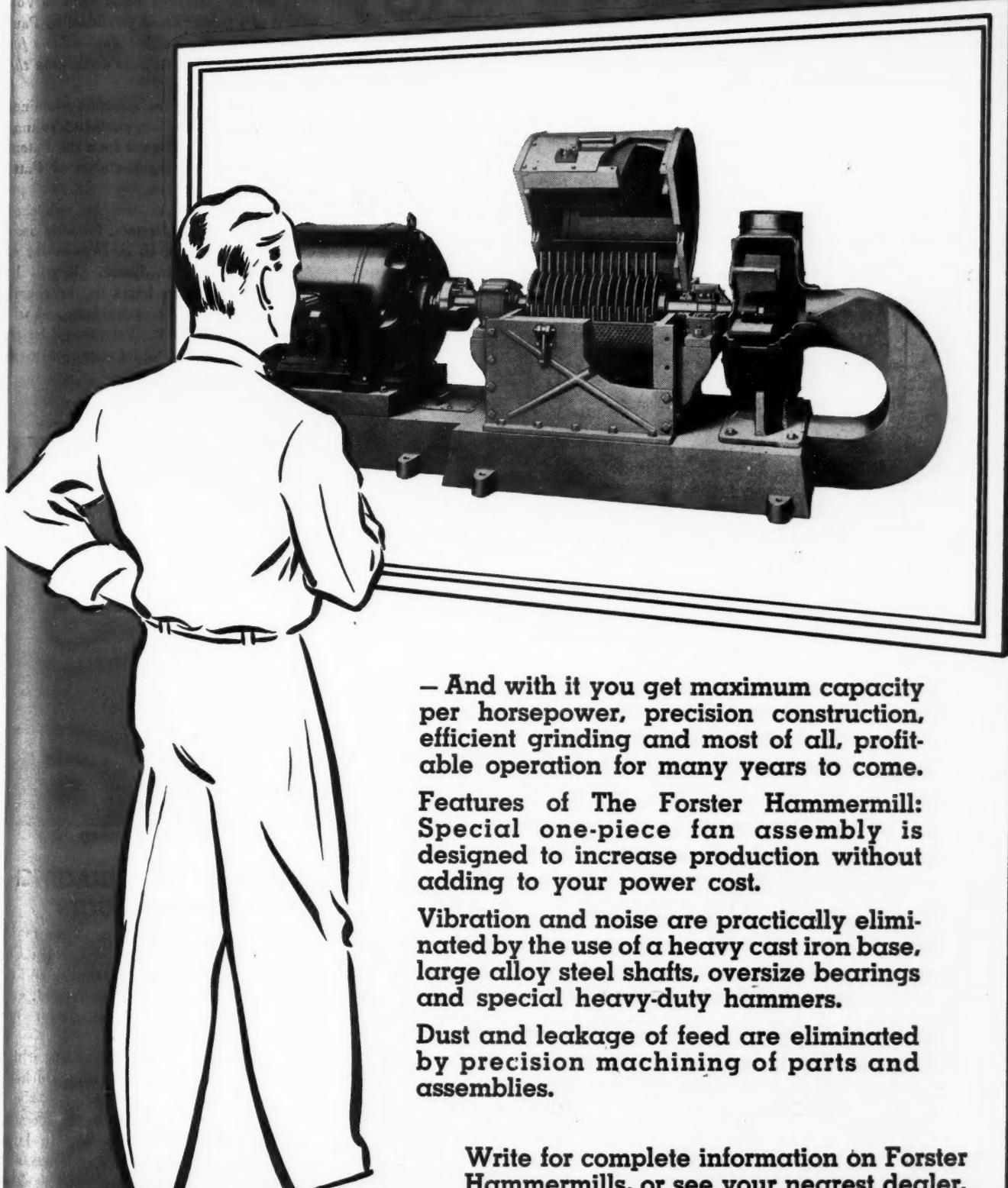
A short time after the Seed Trade Reporting Bureau was formed the government developed specifications for the Brown-Duvel moisture tester. However, credit goes to Mr. Smith for doing the production work on this instrument.

In 1941, Mr. Smith changed the name of the firm to Seedburo Equipment Co. inasmuch as all merchandise had been sold under the name of "Seedburo Quality" for many years.

— s b d —

Soybeans planted in May in Hawaii produce more than twice as much seed as those planted in October, reports Shurei Hirozawa in *Hawaii Farm and Home*.

It's a FORSTER HAMMERMILL



— And with it you get maximum capacity per horsepower, precision construction, efficient grinding and most of all, profitable operation for many years to come.

Features of The Forster Hammermill: Special one-piece fan assembly is designed to increase production without adding to your power cost.

Vibration and noise are practically eliminated by the use of a heavy cast iron base, large alloy steel shafts, oversize bearings and special heavy-duty hammers.

Dust and leakage of feed are eliminated by precision machining of parts and assemblies.

Write for complete information on Forster Hammermills, or see your nearest dealer.



THE FORSTER MANUFACTURING COMPANY

Machines for Modern Milling - WICHITA 12, KANSAS

feed year there will be a near balance of high protein feeds and an easy situation for feed grains. The balance sheet of feed needs and supplies was drawn by the feed survey committee.

* * * *

William H. Froom, sales manager of Swift & Co., soybean mill, Champaign, Ill., has resigned to join I. H. French & Co., brokerage and grain merchandising house at Champaign.

* * * *

Two changes in the sales personnel of Swift & Co. soybean mills at Fostoria, Ohio, and Champaign, Ill., have been announced. Robert J. Hendrick, sales manager at Fostoria, has been transferred to Champaign to act in a similar capacity. Norris F. Krueger of Chicago, has joined the sales department at Fostoria.

* * * *

Swift & Co., Chicago, has taken over and is operating all the oil mill properties formerly owned by the Consumers Cotton Oil Co., in Texas and Oklahoma.

* * * *

January issue of *Journal of the American Oil Chemists' Society* includes an article on "Effect of Storage Conditions and Antioxidants on the Keeping Quality of Packaged Oils," by John E. McConnell and W. B. Esselen, Jr.

* * * *

Operations of Cargill Feeds and Nutrena Feeds have been consolidated into one organization to be known as the Cargill feed division of Minneapolis. Nutrena Mills will retain its identity as a subsidiary of Cargill, Inc.

* * * *

H. R. Diercks, manager of the St. Louis office of Cargill, Inc., was recently named president of the St. Louis Merchants Exchange. E. A. Cayce, vice president of Ralston Purina Co., was named second vice president of the Exchange.

* * * *

The West Tennessee Soya Mill, Tiptonville, Tenn., which recently burned is being rebuilt for a \$300,000 Allis-Chalmers solvent extraction plant, with a capacity of 150 tons daily. The plant will be ready for operation for the new crop.

* * * *

O. N. LaFollette, for the past 2 1/2 years executive secretary of the Feed Institute of Iowa, has resigned to become supervisor of inspection of the feed, seed and fertilizer division of the Iowa Department of Agriculture.

* * * *

1946 Annual Report of the Oliver Corporation contains a number of air views of Oliver plants; also a highly attractive farm view painting by Dale Nichols, with an Oliver tractor and plow in the foreground.

* * * *

Martin V. H. Prinz, formerly research chemist of Omar, Inc., Omaha, Nebr., is now vice president in charge of production of Miracold of California at Los Angeles.

* * * *

Dr. Wendell M. Moyer, director of research of the A. E. Staley Mfg. Co., Decatur, Ill., has been elected chairman of the division of sugar chemistry and technology of the American Chemical Society.

BURLAP AND COTTON BAGS

ARCO

Top Quality

✓ RECONDITIONED THROUGHOUT

✓ SELECTED WITH CARE

✓ CLEANED THOROUGHLY

To Suit Your Needs

We buy and sell used bags • Dependable service for over 20 years

ARCO Bag Co.

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CHICAGO 8, ILLINOIS
CANal 3821

ISSUE PUBLICATION ON FATS, OIL PATENTS

A publication embracing resumes of United States patents, foreign patents and literature, from January 1938 through December 1946, will be published about April as Volume II of a former digest published by Paul D. Boone in 1938, entitled *Antioxidants for Fatty Oils and Compositions Containing the Same*.

Mr. Boone, a former associate examiner in the U. S. Patent Office, published Volume I shortly after he resigned from the Patent Office, after examining the class of Fatty Oils for about 10 years.

The second volume will be published jointly by Ralph B. Deemer, formerly associate chemist in the U. S. Department of Agriculture, and Mr. Boone. It will be divided into chapters based on the chemical composition of the antioxidant, and will be adequately indexed. Patents will be arranged numerically and by country in each chapter.

— s b d —



NESTOR B. BETZOLD

COMPLETE REPACKAGING OF DURKEE PRODUCTS

Durkee Famous Foods, one of the major units of the highly diversified Glidden Co., has completed an 8-year redesigning and repackaging program, Nestor B. Betzold, general sales and advertising manager for Durkee, has announced.

The hundreds of Durkee products, which include Durkee's Famous Dressing, Durkee's Margarine, Durkee's countless spices, shortening, Worcestershire sauce and coconut, now bear the familiar "Durkee" in large red letters on backgrounds of white and green. The design has won many packaging awards.

Identification of the contents is carried in contrasting and harmonizing colors below the brand name.

The bottled dressings and the packaged margarine and shortenings have been standardized and sharply identified.

SOY: PRE-EMINENT FOOD OIL

Soybean oil is expected to be the most prominent food oil for the future, already having taken the leadership in volume, the joint convention of the National Retailer-Owned Grocers, Inc. and the Cooperative Food Distributors of America at Chicago was told.

The speaker was Henry W. Galley, manager of the oils division of A. E. Staley Manufacturing Co., Decatur, Ill., pioneer soybean processing firm.

NOW LEADS

OTHER OILS

Soybean oil now leads cottonseed oil, corn oil and peanut oil in volume of edible oils used in such products as shortening, margarine and salad and cooking oils, he said. Improved refining techniques have put it on a par with the quality of other edible oils and it is acceptable for all purposes for which competing oils are used.

Without soybean oil the whole fats and oil economy of the nation would fall, because of the large demand and short supplies, he said.

Of approximately 1½ billion pounds of soybean oil produced annually in the

United States, the largest consumption is in the manufacturing of shortening, he pointed out. Another sizeable quantity goes into margarine. Other important uses are in the manufacture of mayonnaise and salad dressing, potato chips, prepared flour mixes, the canning of sardines and tuna fish. There is also a very wide distribution among bakers, cracker and biscuit manufacturers, as well as hotels and restaurants, where it is used as a cooking oil for deep frying.

NEXT TO CORN, WHEAT

Galley pointed out to his groceryman audience that thousands of grocers are dependent on the patronage of the farm trade—that their economy is tied in with the financial success of agriculture. Soybeans as a cash crop have brought hundreds of millions of dollars to the farmer and country elevator operator in the past few years and next to corn and wheat, the soybean crop is now the biggest and most valuable in American agriculture.

"The retail grocer will share in the rewards that this miracle bean has contributed to the food industry," Galley said.

FEBRUARY, 1947

In one form or another, soybeans or soybean oil appear in 4,000 items, Galley claimed. He concluded: the uses of soybean oil are expected to increase when advanced methods of processing, now in the laboratory or pilot plant stage, further revolutionize the refining of soybean oil.

—s b d —

INSTALL SOLVENT UNIT

Officials of the Buckeye Cotton Oil Co. announced that a new solvent extraction

unit for removing oils from vegetable seed and beans is now being installed at the company's Hollywood Mill, Memphis, Tenn., and will be ready for operations within 6 to 8 weeks.

This extraction process will make possible recovery of increased quantities of oil from both soybeans and cottonseed, over the press crushing method in common use.

The new solvent process, incorporating what is known as a "basket-type" extractor, is essentially the same as is now used at the Buckeye Co.'s Louisville mill. It will have approximately the same capacity for raw seed and beans as the hydraulic unit which it has been designed to replace.

Swift's Soybean Oil Meal



And Swift's Soybean Oil Meal is certainly clicking with feed manufacturers, feed mixers and feed dealers. That's because it's (1) a high-quality protein base for livestock and poultry feeds. (2) It adds appetite appeal. (3) It gives the right balance to your formulas. (4) It is always uniform in quality and gives dependable results.

When buying Soybean Oil Meal from—or when selling soybeans to—Swift & Company, you can rely on Swift's prompt, friendly service.

SWIFT & COMPANY

Mills at: Cairo, Ill. Fostoria, Ohio Champaign, Ill.
Des Moines, Iowa Frankfort, Ind. Blytheville, Ark.



WASHINGTON Digest

To Head Research The man who is now slated to guide development of the Department of Agriculture's big postwar research and marketing program is E. A. Meyer, a native Ohioan and food processor who came to Washington in October, 1941, as a consultant on canned goods for the old Office of Production Management. He has stayed on since.

Meyer, now an assistant administrator of USDA's Production and Marketing Administration, is in charge of coordinating all marketing work until a new marketing agency is set up under the agricultural research-marketing act passed last summer.

It's commonly understood that Meyer will head the new agency when it is established, and when Congress appropriates sufficient funds to get the work going. President Truman has asked for \$19,500,000 to get

E. A. MEYER



the research-marketing program started during the 1947-48 fiscal year.

Meyer was in the Army's Quartermaster Corps during World War I. In 1920 he entered the food processing business, and remained with the same company until late 1941, when he came to Washington. Meyer held a number of top food jobs in the War Production Board, came into USDA's War Food Administration in 1943, later became chief of the fruits and vegetables branch.

In his new work, Meyer will have a chance to apply his experience on a much broader scale. His job will be to direct the research planning and marketing program development under the new legislation both in food and non-food lines.

Though the question isn't settled, most officials think that present research work being conducted by the "old line" USDA bureaus under the Agricultural Research Administration will continue under separate management, but will be coordinated with the work of the new agency.

Allocations for Export Department of Agriculture is letting down the bars a small notch for limited exports of oilseed meals and cake.

Policy is to grant small export allocations to foreign claimants asking for meal, and able to show emergency need.

To some countries protein meal is even more important than direct food imports to keep livestock, poultry and dairy production up to at least a minimum.

A further reason for permitting some exports is a USDA desire to keep oilseed product prices at reasonably good levels to encourage the desired 1947 plantings, particularly of soybeans.

So far, USDA hasn't officially considered

the research-marketing program started during the 1947-48 fiscal year.

By PORTER M. HEDGE

Washington Correspondent for
The Soybean Digest

a block allocation out of total U.S. protein meal supplies for all countries for the current season. However, *some officials estimate the emergency allocations for export will run to about 2 percent of estimated production this season—or about 116,000 tons out of an expected 5,800,000 ton supply.*

Sixty-five thousand long tons of oilseed meals have been allocated to date—20,000 tons to Holland; 15,000 to France; 10,000 each to Denmark and Belgium; and 5,000 each to Norway and Finland.

Fats and Oils Allocations One hundred and thirty-eight million pounds of fats and oils are allocated for export during the first quarter of this year, plus an unshipped balance of 71.7 million pounds, mainly for UNRRA, from the fourth quarter of 1946.

The first quarter allocation represents a drop of 86 million pounds from a year ago.

The allocation (in terms of fat content) calls for export of 110 million pounds of lard, 32.5 million pounds of margarine, 39.5 million pounds of shortening and other edible oils, 8.3 million of inedible fats and oils, and 19.4 million of soap.

UNRRA will receive 24.9 million pounds of the 1st quarter margarine, the Army for civilian feeding in Europe 1.5 million; France 2.3 million; and French North Africa 1.1 million. All the margarine for

ZIMMERMAN ALDERSON CARR COMPANY

BROKERS IN VEGETABLE OILS

Intelligent and Honest Brokerage Service Since 1908

O. B. Huffaker Howard A. Hoaglund G. L. Eldred G. D. Huffaker Jack B. Stott

105 W. Adams St., Chicago 3, Ill.

L. D. 29 Randolph 2037 L. D. 30

NEW YORK

MEMPHIS

DALLAS

UNRRA, France and French North Africa will be processed from coconut oil owned by Commodity Credit Corp.

Receiving countries for shortening and other edible oils (in millions of pounds of fat content): Canada 5.2, France 4.9, American Republics 3.1, Army for civilian feeding in Europe 2.8, The Netherlands 2.2, Finland 1.9, Switzerland 1.8, French colonies 1.8, British dominions, colonies and protectorates 1.6, UNRRA (for Italy) 1.1, and Norway 1.1.

Goals for Future Department of Agriculture is working up long-range acreage and production goals with a view to setting up a few sign posts which might indicate potential markets for farm products under conditions of high national income, full employment, reasonably good exports, and generally prosperous conditions.

Specifically, tentative goals are being worked up for 1950, 1960, and 1975. The 1950 goals now being discussed—and based on volume of farm products the country could and should consume under favorable economic conditions—are admittedly on the optimistic side.

A soybean acreage between 9 million and 10 million acres is proposed. This compares with 11,500,000 planted acres last year. National corn acreage would come down from 90 million planted acres last year to around 88 million in 1950. The proposed goal for oats is about 44 million acres, compared with 1946 plantings of 47 million.

On the livestock side, the tentative 1950 goals show increases in most categories over 1946: Milk production, 127 billion pounds compared with an estimated 120 billion last year; hog production, 90 million head (spring and fall crops) compared with 83,200,000 head in 1946; cattle numbers between 81½ to 82 million head, compared with an estimated 79.8 million in 1946.

In general, the top thinking in USDA now is that the best answer to recurring farm surpluses is greater output of meat, milk, fruits and vegetables, not only to improve diets, but to take the pressure off the most troublesome export crops—wheat and cotton—and to bring cultivated acres in line with good conservation.

The main theory is that it's possible to regulate production of some commodities within the framework of the total production pattern, but it's not possible to keep total production from expanding.

Only a prosperous internal economy, with the top-income half eating as well as now and the low-income half eating better, can support the increased volume of farm output. In addition, just enough exports are needed to keep the spillover from domestic

use from piling up as surplus. So say the experts.

The specific question of where producers will find markets, at prices they consider reasonable, for the increased volume is left to the future.

Increased Support? The increase from \$4 to \$6 a bushel in the 1947-crop price support on flaxseed has raised the question of boosting the price guarantee on 1947-produced soybeans.

Some representatives of the soybean industry have urged an increase, to be announced this winter, as a further guarantee of large plantings.

The final 1947 soybean acreage goal is 11,244,000 acres on a harvested basis. Last year's final estimate of acreage for harvest is 9,606,000 acres.

So far, there have been no signs USDA would consider a higher 1947 soybean price support than the announced \$2.04 a bushel.

The first official report on 1947 planting intentions, which would influence USDA price thinking on soybeans, is due March 20.

Farm Stocks USDA estimates 18.5 percent of 1946 soybean production was on farms Jan. 1, 1947, or a total of 36,482,000 bushels compared with 43,267,000 a year ago.

Disappearance from farms between harvest and the first of the year is estimated at 162 million bushels, 10 million bushels larger than a year ago.

States reporting farm stocks of a million or more bushels: (in thousands of bushels): Ohio 3,413, Indiana 5,069, Illinois 12,006, Minnesota 2,455, Iowa 5,594, Missouri 2,154, North Carolina 1,345.

— s b d —

Louis Groh, Clay Bank, Va., reports the best crop of soybeans ever raised in that section and the harvesting weather was good.

"THE
NARROW BOILING RANGE
OF PHILLIPS SOLVENTS... MEANS
A GREATER PROFIT RANGE!"

Phillips
SOLVENTS

NORMAL HEPTANE
Distillation range
200 - 210° F

NORMAL HEXANE
Distillation range
150 - 156° F

The narrow boiling range of Phillips Solvents means better, more economical solvent extraction and the uniform high quality of these solvents produces a more valuable finished product. The dependable supply, uniform high quality and low price are other benefits you'll find attractive. Your inquiry will receive prompt attention.

Speaking of purity, Phillips Pure Grade Normal Heptane (99.13+ mol percent purity) is now available for exacting chemical uses.

PHILLIPS PETROLEUM COMPANY

Chemical Products Department
BARTLESVILLE, OKLAHOMA

--- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion \$1.00.

FOR SALE—Anderson Expeller Shafts—YM, YMV, YMV-16, and YMV-6 water cooled; Good spare motors for Anderson Expeller, 25 h. p., rewound to 37 h.p. Immediate delivery. Write or call: Central Soya Co., Inc., Gen. Purchasing Dept., Decatur, Ind.

FOR SALE—Lincoln soybeans, recleaned and bagged. Edward Lehman, Remington, Ind.

WANTED—Raymond Air Separator, 8', 10' or 12' in diameter with double whizzer, for export. R. L. Thomson, 50 Church St., New York 7, New York.

EXPECT TO have approximately 80 Bushels of the new Sanga edible soybeans, certified, for sale this Fall. Would like to contract for their sale. T. R. Creamer, R2, Box 10, Springfield, Illinois.

JOHN KNUDSON WINS IOWA YIELD CONTEST

John Knudson of Albion won over 100 other contestants to take the title of Iowa champion soybean grower and placed first in the Iowa Soybean Yield Contest for 1946.

Knudson's average yield on the 5 acres he entered in the contest was 52.26, by far the highest yield of any Iowa yield contestant to date. The highest previous yield was by Bert Kinsinger, Grundy Center, in 1943. His yield was 38.72.

Knudson won the John Sand trophy and the \$50 first place award.

Second place winner was John H. Greiner, Keota, with a yield of 49.23.

Third place was won by Doyle Palmer, Wellman, with a yield of 47.80.

All three first place winners entered Lincoln, as did 88 of the 101 contestants.

The 1946 contest was the largest in Iowa yield contest history, with 26 county and local contests being held. The contests were sponsored by Iowa Corn and Small Grain Growers Association, Ames, and local cooperating organizations in the various counties. Results were announced February 11 over Radio Station WOI by Geo. M. Strayer, editor of the *Soybean Digest*.

District winners and their yields were: district 1, Thos. Raveling, Linn Grove, 34.26; district 4, Geo. Wassom, Sac City, 43.49; district 5, Bert Kinsinger, Grundy Center, 46.39; district 6, Roger J. Shaff, Camanche, 38.65; district 7, Merle Zepp, Scranton, 45.24; district 8, John Knudson, Albion, 52.26; district 9, John H. Greiner, Keota, 49.23; district 11, Pearl Sutton, Corydon, 37.63; district 12, C. R. Winsell, Selma, 24.11.

Average per acre yield of all contestants was 36.8.

NEW STEEL TANKS STOCK SHIPMENT

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Kennett—Kennett Grain & Seed Co., 3,000 bu. certified Ral soy.

Marshall—MFA Seed Division, Box 515.

Sikeston—C. F. McMullin Estate, 270 McCoy-Tanner Bldg., truck and car lots Ral soy, Missouri state certified from own production.

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Elk City—Howard L. Wahlgren, 400 bu. certified Lincoln.

Wood River—McGuire Bros., Rt. 3, 1,500 bu. certified Lincoln.

— s b d —

A leaflet, *Know Your Soybeans*, urging the using of certified seed, has been issued by the Indiana Corn Growers Association. It is available to all Indiana certified seed growers.

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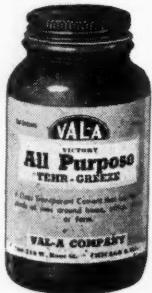
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In The **MARKETS**

OIL MEAL WEAK; LITTLE ACTIVITY IN OIL AND BEANS

The soybean oil meal market in January went into a month long slump.

Government allocations of soybean oil meal for foreign shipment were announced as expected but quantities involved were not large enough to have a strong effect.

Weather in much of the Midwest was unseasonably warm most of January and the heavy demand for mixed feeds that was expected at the onset of cold weather did not fully develop. Large offerings of prompt shipment soybean meal pressed on the market, which was \$14 lower January 31 than it had been January 2.

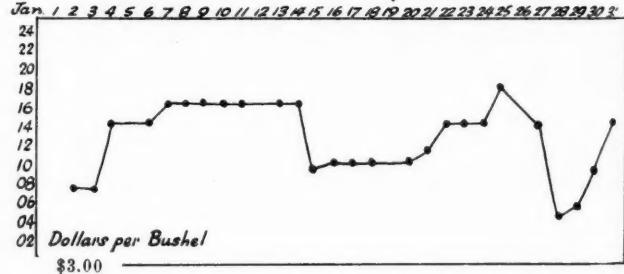
Soybean prices reflected the oil meal market to some extent. But trading in beans was nominal. Only a few cash sales were reported in Chicago during the month.

Oil was firm and slightly upward all month, but activity was light.

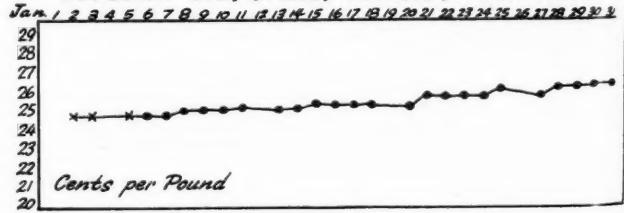
The government announced allocation of 35,000 tons of protein meals for export to Holland, Belgium, Finland and France. This did not halt the downward trend for long. Considerable soybean oil meal that had been held back for possible export was placed on the domestic market.

Throughout the month a wide range of prices was quoted on soybean oil meal. However, the month closed just a little firmer with some big Canadian interests reported in the market. March shipments Decatur basis bulk meal were being quoted at \$53.50; May at \$55.50 to \$56.50; and July at \$54.50 to \$56.00.

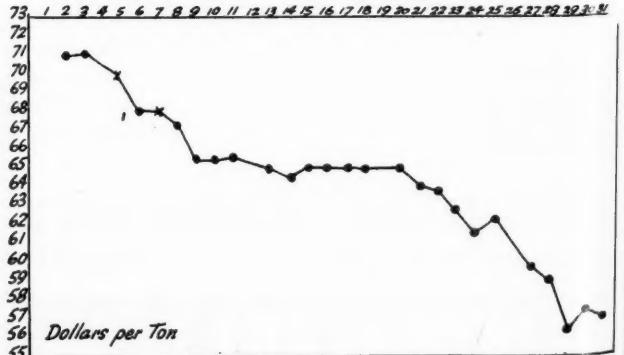
SOYBEANS, No. 2, Chicago Market Bids



SOYBEAN OIL, Crude, Tankers, F.O.B. Decatur



SOYBEAN OIL MEAL, Basis Decatur



The lowest cash price for No. 2 soybeans for the month on the Chicago market was \$3.19, reported January 7 and 9. The highest cash price was \$3.27, paid on January 16. But practically nothing was being offered on the cash market. The weak oil meal situation forced some of the large processors out of the market for a time.

The month's market for crude oil opened at 25c, closing at 26½c in tank car lots, f.o.b. Decatur. The price held between these two figures the whole month.

At the month's end the soybean oil futures market at New York City was at a standstill, with soybean oil for March delivery being quoted at 28c.

● SOYBEAN STOCKS. Stocks of soybeans on farms January 1 totalled 36,482,000 bushels, equivalent to 18.5 percent of the 1946 production. This is a substantial decrease from the 43,267,000 bushels on farms a year ago and is the lowest January 1 farm stocks since 1943, the first year for which estimates are available.

The crop matured and was harvested under almost ideal conditions in a large part of the main soybean area. The market for soybeans was unusually active at harvest time since both farm and commercial stocks were at an extremely low level. After the lifting of price controls in mid-October the price of soybeans advanced sharply. With these favorable conditions the crop moved to market at a rapid rate, many farmers holding no stocks or only enough to meet anticipated seed requirements.

Farm disappearance between October 1, 1946 and January 1, 1947 amounted to about 162 million bushels from a total supply of 199 million bushels. This was larger than for the same period in any previous year. Disappearance from farms October 1, 1945 to January 1, 1946 was about 152 million bushels.

Stocks of soybeans in all positions on and off farms on January 1, 1947 totaled 155 million bushels, the Bureau of Agricultural Economics reports. This total includes 36.5 million bushels on farms and 36.6 million bushels in interior mills, elevators, warehouses and other establishments as estimated by the Bureau of Agricultural Economics; 60 million bushels held at processing plants, as enumerated by the Bureau of the Census; and 21.7 million bushels reported at terminals by the Production and Marketing Administration. Total stocks on January 1, 1946 amounted to 154 million bushels, slightly below the current January 1 stocks. On January 1, 1945 total stocks were about 158 million bushels.

From a supply of about 201 million bushels (stocks of 4.3 million bushels October 1, 1946, plus 1946 production of 196.7 million bushels) disappearance during the period October 1, 1946 to January 1, 1947 amounted to 46.3 million bushels. Of this 41,652,000 bushels were crushed for oil in the final quarter of 1946, according to reports from the Bureau of the Census. Disappearance for the same period a year earlier was about 45.9 million bushels of which crushings amounted to 37,788,000 bushels. Crushings during the 1945-46 season left stocks at an extremely low level on October 1, 1946. If the more rapid rate of crushings as reported in the last three months of 1946 were to continue, it is evident that the supply would be exhausted before 1947 crop soybeans become available.

STOCKS OF SOYBEANS, JAN. 1, 1947, WITH COMPARISONS

Position	Jan. 1, 1945	Jan. 1, 1946	Oct. 1, 1946	Jan. 1, 1947
Thousand Bu.				
On Farms	41,998	43,267	2,118	36,482
Int. M. E. & Whses.	40,137	39,572	268	36,588
Processing Plants	47,708	46,255	1,793	60,021
Terminals	24,446	24,423	157	21,704
Steel & Wooden Bins	3,523	400	0	0
TOTAL ALL POSITIONS	157,812	153,917	4,336	154,795

1/ Excludes stocks in processing plants enumerated by the Bureau of the Census and commercial stocks at terminals reported by the Grain Branch, Production and Marketing Administration.

● SOYBEAN INSPECTIONS. Receipts of soybeans inspected in December decreased seasonally to 7,447 cars compared with 16,700 cars in November and 32,278 cars in October, according to inspectors' reports to the grain branch of the Production and Marketing

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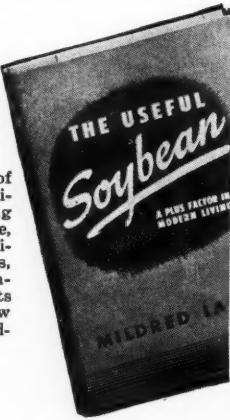
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Administration. The average for the month of December for the crop years 1940-45 was 5,370 cars.

The quality of the soybeans inspected in December was considerably below that for the preceding month, only 53 percent grading No. 2 or better compared with 63 percent in November.

Inspections of soybeans in December included the equivalent of 217 cars inspected as cargo lots and truck receipts equivalent to about 142 cars.

● COMMERCIAL SOYBEAN STOCKS. Production and Marketing Administration's commercial grain stocks reports for January.

U. S. Soybeans in Store and Afloat at Domestic Markets

	(1,000 bu.)	Jan. 7	Jan. 14	Jan. 21	Jan. 28
Atlantic Coast	577	584	570	517	
Gulf Coast	130	141	183	185	
Northwestern and					
Upper Lake	3,185	3,271	3,400	3,436	
Lower Lake	8,174	7,984	7,798	7,512	
East Central	6,161	6,207	6,113	5,883	
West Central					
Southwestern & Western	3,477	3,411	3,268	3,175	
Total current week	21,704	21,598	21,332	20,708	
Total Year ago	23,597	23,133	22,197	21,267	

U. S. Soybeans in Store and Afloat at Canadian Markets	
Total current week	130
Total Year ago	74

● STANDARD SHORTENING SHIPMENTS. By members of Institute of Shortening Mfgs., in pounds.

December 28	5,064,081
January 4	4,563,575
January 11	6,334,009
January 18	6,120,370
January 25	6,372,031

 *Government Orders*

● PROTEIN MEAL ALLOCATED. The U. S. Department of Agriculture announced January-June 1947 protein meal allocations of 10,000 long tons for Belgium and 10,000 long tons for the Netherlands, to meet emergency needs.

The allocations announced are in response to an emergency call for feed in the two countries. The quantities allocated will be chargeable to claimants under international feed allocations for the first half of 1947 to be made by the International Emergency Food Council. Additional quantities may be allocated as supplies permit and in accordance with the critical nature of needs in claimant countries.

The U. S. Department of Agriculture also announced a commercial allocation of 5,000 long tons of oil cakes or meals to Finland.

The allocation to Finland is good for the first 6 months of 1947. Any type of oil cake or meal may be procured against the allocation. The Department stated, however, that in order to assure that the export of feeds does not interfere with the export program of food grains, the claimant has been asked to limit procurement to supplies now in port or on inland waterways, so as to permit movement to port by water.

It is expected that Finland will procure and ship this allocation at once. Feed is extremely short in Finland because of a smaller harvest in 1946 than in 1945, and the receipt of smaller supplies from outside sources than had been desired.

The Department of Agriculture announced January 30, a commercial allocation of 10,000 long tons of oil cakes or meals to France.

The allocation to France is good for the first 6 months of 1947. Any type of oil cake or meal may be procured against the allocation. The Department stated that the claimant has been asked to limit procurement to supplies now at or near ports, so as to minimize the use of rail facilities.

It is expected that France will procure and ship this allocation at once.